

**THE  
RAILWAY GAZETTE**

A Journal of Management, Engineering and Operation  
INCORPORATING

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## CONTENTS

|  | PAGE |
|--|------|
| Editorial Notes .. .. .                            | 629  |
| Buenos Ayres & Pacific Railway Co. Ltd. .. .. .    | 631  |
| Argentine State Railway Organisation and Finance.. | 631  |
| Railway Staff Negotiating Machinery .. .. .        | 632  |
| Condescension on the Part of our Critics .. .. .   | 633  |
| Letters to the Editor .. .. .                      | 634  |
| Publications Received .. .. .                      | 634  |
| The Scrap Heap .. .. .                             | 635  |
| Overseas Railway Affairs.. .. .                    | 636  |
| Railway Fuel Economy .. .. .                       | 637  |
| The Railways of Bolivia .. .. .                    | 639  |
| Colour-Light Distant Signals on the L.M.S.R. ..    | 640  |
| Personal .. .. .                                   | 643  |
| Transport Services and the War .. .. .             | 645  |
| Notes and News .. .. .                             | 650  |
| Stock Market and Table .. .. .                     | 652  |

## GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

## NOTICE TO SUBSCRIBERS

Consequent on the paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list and will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions

## POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE possesses the necessary permit and facilities for such dispatch.

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

## TO CALLERS AND TELEPHONERS

Until further notice our office hours are:

Mondays to Fridays 9.30 a.m. till 4.30 p.m.

The office is closed on Saturdays

## ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

## ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

## Cultivating Public Goodwill

THE importance of cultivating and maintaining the goodwill of the public is particularly vital in the railway industry, because of the many points at which contact is made with the daily lives of the people, either as passengers or as consignors or consignees of goods. The numerous curtailments of facilities which have been brought about as a result of wartime exigencies in nearly all cases have had their reactions on the public. We have previously stated that the public memory is likely to be keener in the matter of the discomforts and disabilities it has had to endure during the war, than in its appreciation of the outstanding services which the railways have performed in a time of grave crisis. Mr. F. A. Pope, Chief Commercial Manager of the L.M.S.R., holds the same view, and in the current issue of *Carry On*, the L.M.S.R. staff newsletter, he has addressed a message to those in his department, urging them to remember the value of good relations with the public and thus to help the future of the railways. In particular, he warns them against any tendency to excuse deficiencies in railway transport by reference to such phrases as: "There's a war on." Mr. Pope suggests that every opportunity should be taken to endeavour to explain to customers why peacetime standards of transport cannot be provided.

## Planning for the Future

There can be no doubt that the immediate post-war conditions on the railways will be difficult. Track and equipment is being used to the maximum as the war lengthens. It may be years before these arrears are fully overtaken, as Mr. Pope points out, and in the meantime the public will be clamouring for a speedy restitution of peacetime services and amenities. The Commercial Department will have to meet alterations in trading conditions and practices, and it will have an important part to play in national recovery. Mr. Pope suggests that, apart from maintaining good relations with the travelling and trading public during the present difficult times, thought should be given, without detriment to present work, to some of the things that should be done afterwards, so as to keep up the L.M.S.R. standard in serving the public and providing it with what it wants. He has invited members of the staff to submit ideas as to the facilities—fares, services, goods, or passenger—which they would like to see introduced after war.

## Argentine Balances and Trade

Señor Jorge Santamarina, the Argentine Minister of Finance, made an important statement on post-war purchases from Great Britain when he was announcing the intended repatriation of a large part of the British-held foreign debt of the Republic. Some details of the repatriation, which includes among others State railway obligations, were given in our October 1 issue, on page 346. He pointed out that in normal times the Argentine debt service in Great Britain was covered by exports to this country; it was not the regular payment of interest on her foreign obligations that could maintain and increase Argentine export trade, but her capacity to take imports in payment for her exports. That would be shown in a concrete form immediately after the war. A realistic statement of this kind by the Foreign Minister will be widely welcomed. As has been shown in our columns from time to time, the peso balances in this country have been very large, as must inevitably be the case in the circumstances ruling during war, when British purchases from the Argentine far outstrip any shipments we are able to make to that country.

## An Argentine Programme of Imports

In preparation for the resumption of trade between the two countries immediately after the war, the Minister stated that it was essential to draw up an ample programme of imports covering all those articles and commodities which were not produced in Argentina, but which were needed by that country for her economic expansion. It would be necessary to purchase from Great Britain large quantities of machinery, transport materials, and equipment for the heavy industries, and he declared his belief that an import programme on those lines offered the best method of stimulating the country's exports. In view of Señor Santamarina's statement it would seem clear that in making their post-war plans British industrialists should not overlook the potential Argentine demand for their products. It would, indeed, be helpful to both sides if some contact could be made between them, so that due provision could be made

for assisting in the further economic expansion of Argentina, towards the prosperity of which the British-owned railways have done so much in the past.

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### Overseas Railway Traffics

More attention to the ever-increasing costs of fuel than to the general improvement in traffics has had some influence on the prices of securities in the British-owned Argentine railways. As will be seen from the accompanying table the aggregate receipts for the 23 weeks and 3 days of the current financial year show increases of £330,060 on the Buenos Ayres Great Southern, £276,174 on the Central Argentine, and £81,300 on the Buenos Ayres & Pacific. Crop conditions account for the decrease of £24,240 on the Buenos Ayres Western. To date the Argentine North Eastern is £16,158 up, and the Entre Rios £26,532 up. Central Uruguay traffics show an aggregate improvement of £230,057 to date. With little more than two weeks to the close of the financial year the Great Western of Brazil and the Leopoldina record aggregate increases of £250,000 and £257,273 respectively.

|                                  | No. of<br>week | Weekly<br>traffics<br>£ | Inc. or<br>dec.<br>£ | Aggregate<br>traffic<br>£ | Inc. or<br>dec.<br>£ |
|----------------------------------|----------------|-------------------------|----------------------|---------------------------|----------------------|
| Buenos Ayres & Pacific * ...     | 24th           | 105,000                 | - 600                | 2,205,600                 | + 81,300             |
| Buenos Ayres Great Southern* ... | 24th           | 185,280                 | +17,520              | 3,713,580                 | +330,060             |
| Buenos Ayres Western* ...        | 24th           | 58,200                  | +1,200               | 1,215,780                 | - 24,240             |
| Central Argentine* ...           | 24th           | 162,132                 | +15,801              | 3,276,990                 | +276,174             |
| Canadian Pacific ...             | 49th           | 1,236,200               | +149,800             | 55,201,200                | +7,646,600           |

\* Pesos converted at 16½ to £

United of Havana traffics have recently been declining, but it may be noted that the total decreases of £42,690 shown in the past four weeks go against total increases of £117,659 in the corresponding weeks of 1942.

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### Will Workmen's Fares Survive?

The question of the continuance after the war of workmen's fares is likely to become a practical issue, and, even if this particular facility does survive, the rates to be charged will doubtless form the subject of earnest enquiry. Nowadays it is probable that more clerical workers use workmen's trains than actual labourers, and it is generally recognised that many whose hours of work make it convenient for them to take advantage of the lower fare may have less real claim to the concession than those who travel later in the day. On December 12, in *The Observer*, Mr. W. Manning Dacey (the Financial Editor) discussed the subject, and showed clearly that the economic case for workmen's tickets had now disappeared, and that cheap fares in the early morning represented, in plain terms, a subsidy. He also pointed out that it is not necessarily a subsidy to the workers who buy the tickets, but may represent a subsidy to employers who would otherwise have to pay higher wages, or to landlords in outlying districts who would otherwise have to accept lower rents. He made the interesting suggestion that if early travel at less than the economic cost were considered desirable on social grounds, then the subsidy involved should be borne by the taxpayer, like the cost of other social services, and not, as at present, by either the other users of transport or the holders of railway stocks. A railway officer recently put the position in a nutshell with the remark: "Free milk is provided for children today, but the dairies are not expected to pay for it."

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### Transport in Bolivia

As the only land-locked republic in South America, Bolivia has a particularly keen interest in inland transport. For many years it has been linked by rail with the Pacific Ocean to the Chilean ports of Arica and Antofagasta, and has also had a less direct connection by means of a combination of rail and steamer services through Peru. More recently, the construction of the well-known Atocha-Villazon Railway has linked the Bolivian railways with those of Argentina, affording a contact with the Atlantic Ocean by means of a lengthy rail haul. Since the outbreak of war, attention has been directed to the important schemes destined to join the Bolivian railways with those of Brazil, and thus form a new transcontinental line. Particular interest therefore attaches to the current position, which we outline in an article this week, page 639. Bolivia also has 3,495 miles of air lines, and there is a fair measure of co-ordination, under Government control, between the various forms of transport. There are 10,154 miles of highway, and 5,600 miles of navigable river in Bolivia, in addition to 1,608 miles of metre-gauge railway; of the last-named, exactly one half is operated by British interests.

### The Pullman Agreement

Three years ago, when about 20 per cent. of the vehicles of the Pullman Car Co. Ltd. were in service, operating only on the Southern Railway, the directors announced that a settlement had been reached with the railway companies as to compensation for loss of service and receipts. A sum not exceeding £55,000 a year, and dating from the outbreak of war, was to be paid to the company, out of which it would have to meet any losses in working. The report of the directors for the year ended September 30, 1943, has just been issued, and this records that, on the termination of the first three years of the Compensation Agreement with the railway companies, the Minister of War Transport decided, on account of the repayment of the Pullman Car Company's debentures, that the total to be received shall not exceed £50,000 per annum. This sum is to include any losses in working that may be incurred, and the amount required for depreciation. The revised arrangement will operate until September 30, 1945, if the war continues for that period. So far as present circumstances permit, everything is being done to keep the cars in weatherproof condition, but Sir Follett Holt (the Chairman) says in his statement that, unfortunately, he cannot say, as he did last year, that no further damage has been done to the company's cars or property.

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### Government Control of Canals

The financial agreement between the Government and the canal undertakings for wartime control is expected to reach finality early in the New Year. Negotiations as to the terms took place in the first instance between the Ministry of War Transport and a negotiating committee appointed by the controlled canal undertakings, and between the Ministry and a separate negotiating committee appointed by the controlled canal carriers. The object was to agree with the Ministry a common basis of principle for the settlement of the separate financial arrangements to be made between the Minister and the individual controlled companies. Mr. John Miller, Chairman of the Grand Union Canal Company, told stockholders at the annual meeting on December 15 that the negotiations on the issues of principle had taken longer than had been expected, because of the widely varying circumstances of the controlled undertakings, and it was only very recently that, subject to certain reservations, agreement on principle had been reached. The basic principles have now been settled, but there is provision for adjustment in them to meet individual cases, and the precise kind and extent of those adjustments is a matter for negotiation, on which talks are still proceeding.

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### Colombian Railway Extensions

In a country which has not been outstanding for its railway developments, it is very interesting to learn that considerable attention is now being devoted to the possibilities of constructing new lines, and at present the most important of the public works projects in Colombia are proposed extensions of the railway system. Principal interest attaches to the section between Ibaguë and Armenia, the construction of which would give Bogota direct railway communication with the port of Buenaventura, on the Pacific coast; at present there is a road link between the railheads. A more ambitious project is the proposed extension to Bucaramanga and Cucuta of the railway running northward from Bogota. This would give Bogota a rail outlet to the lower Magdalena River, to Venezuela, and to the Atlantic. In Venezuela, a railway from Encontrados to Maracaibo is contemplated. Work on this Colombian Northern Railway is at present planned for the immediate post-war period. Reference to another intended new railway, namely, from Anzo to Antioquia, is made in a news paragraph this week (page 650).

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### Welding Worn Switch-Blades

An interesting correspondence has been published recently in our American contemporary *Railway Engineering & Maintenance* on the propriety or otherwise of building up worn switch-blades by welding. In general, opinion is favourable to the practice, though on some railways it is not deemed desirable to use such built-up points in main lines carrying high speed traffic or a dense train service. On other lines, however, such as the Chicago & North Western, which is used by a number of very fast diesel streamliners, welding of worn switch-blades has been carried out in main routes for the past 20 years, and 30 ft. switches of 112-lb. rail in high-speed tracks are welded as a matter of routine. There are two methods of doing the work. One is to weld *in situ*, which ensures a good fit of the built-up point to a worn stockrail, but necessitates complete possession of the track through the switch while the work is in progress and until the welded rail has cooled. A second is to take the



worn switch-blades out of service for reconditioning, which, if more expensive, is the better plan, as all the switch attachments can be overhauled and reconditioned at the same time. Track foremen should be restrained from fitting such reconditioned blades to worn stock-rails, for if the blade should be higher than the stock-rail, the former will almost certainly chip and break away. One engineer objects to using built-up switch-blades in any switch laid on a curve, as he considers it undesirable to subject the weld metal to lateral thrust.

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#### Colour-Light Distant Signals on the L.M.S.R.

As the semaphore type distant signals on certain main routes of the L.M.S.R. fall due for renewal they are being changed to colour lights, as described in the article at page 640 in this issue. Particular care is taken to ensure thoroughly reliable working and exclude the possibility of dark signals. The yellow aspects are duplicated, one above and the other below the green aspect. The normally-illuminated yellow aspect is invariably the one nearer to the driver's line of vision. Where there is insufficient room for a post between tracks a signal is either suspended from a gantry, as low as gauge limits will allow, with an attachment enabling it to be raised clear of out-of-gauge loads, or—where there is enough straight approach to it—fixed as a dwarf unit. The Locomotive Running Department finds these dwarf signals most satisfactory; their cost is much less than that of the gantry type. The principle adopted by the L.M.S.R. is to make the distant warning distinct, powerful, and completely reliable and then, having done everything possible to ensure its being seen, to hold the driver responsible for acting correctly thereafter. In other words, its motto is: "You have been warned."

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#### Locomotive Conservatism

Experience always has been preferred to theory as a guide to engineering advancement and nowhere is this more true than in locomotive engineering in which it is particularly unusual for anything to be done without precedent. If mistakes were less costly and less likely to result in consequences of a disastrous nature we might see many novel locomotive designs on our railways. As it is the latest locomotive creation differs but slightly from its predecessors and over a period of years progress in design seems slow. There is, it is true, a striking difference between the engine of today and the engine of, say, 1880; nevertheless the two machines remain fundamentally the same; there are the same organs disposed in the same way relatively to one another; all that has happened is that the earlier machine has been enlarged cautiously little by little, component by component, over a long period to meet the gradually-increased demands of the traffic department. How necessary it is to proceed along well-tried lines and not give way to hopeful inspiration may be judged from the rarity with which novel designs have survived the test of normal service. One of the very few radical innovations in steam locomotive design ever to have been retained in everyday operation over a long period and given work of the first importance to do is the turbine locomotive of the L.M.S.R., a footplate run on which was described in our issue of July 23.

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#### The Most Powerful Locomotive

With the appearance on the Duluth, Missabe & Iron Range Railway of ten more 2-8-8-4 locomotives, capable each of exerting a tractive effort of 140,000 lb. the discussion again has arisen as to whether these units are more powerful than the Union Pacific Railroad 4-8-8-4 "Big Boys," which exert 135,375 lb. The latter have 68 in. driving wheels and were designed to give maximum power continuously at 70 m.p.h. With 63-in. wheels, 26-in. pistons (instead of 23½ in.), and 240, instead of 300 lb. per sq. in. boiler pressure, the newer locomotives are not likely to have quite such capabilities of speed as their rivals, although, at some speed lower than 70 m.p.h., the cylinder horsepower might reach, or surpass, the limit set by the Union Pacific engines. In favour of the former is the fact that their 12-in. piston valves, actuated by Baker gear, have nearly 1 in. greater maximum travel. Boiler proportions leave little to choose. The grate area of the Union Pacific engine, 150.3 sq. ft., exceeds that of its rival by 25.3 sq. ft., but the evaporative heating surface is 5,889 sq. ft., against 6,758 sq. ft.; the superheater surfaces are 2,466 sq. ft., against 2,770 sq. ft. The heating surface is 704, against 726 sq. ft. If there be a difference in maximum performance, this might be in favour of one engine one day, and the other the next, because, all things considered, the engines appear so closely matched that unavoidable variations in fuel quality probably would decide the result of a comparison by trial.

#### Buenos Ayres & Pacific Railway Co. Ltd.

AS indicated in the Chairman's statement issued with the report for the year ended June 30, 1943, Argentine business conditions are flourishing and prices for Argentine exports, especially meat and wool, are satisfactory. The accounts for the period under review showed an increase of £864,061 in gross receipts which covered the increase of £564,054 in working expenses, leaving a gain of £300,007 in net receipts. This advantage was offset, however, to the extent of £89,276 by the rise in exchange differences from £603,674 to £702,950. Adding £129,442 balance of interest, etc., account, makes £1,007,260 available for distribution. This has enabled the interest on the first and second debenture stocks of the company and of the Argentine Great Western Railway Company, and on the first debenture stock of the Villa Maria & Rufino Railway Company, amounting in all to £373,315, to be paid on the due dates. During the year under review, and since June 30, 1943, payments of arrears on the 4½ per cent. consolidated debenture stock of the company have been brought up to July 1, 1939, and on the 5 per cent. debenture stock of the Argentine Great Western Railway Company up to October 1, 1939. For the year under review the debit balance was £888,982, against £1,097,111 for 1941-42, and the total balance at debit of net revenue account is now £9,549,294. Some operating figures follow:—

|                                   | 1941-42    | 1942-43    |
|-----------------------------------|------------|------------|
| Passengers ... ..                 | 15,220,731 | 15,975,874 |
| Tons of goods (metric) ... ..     | 3,436,921  | 3,819,565  |
| Train-miles ... ..                | 9,067,373  | —          |
| Net profit per train-mile ... ..  | 2s. 10d.   | 3s. 11½d.  |
| Operating ratio, per cent. ... .. | 80.76      | 78.98      |
| £                                 |            |            |
| Passenger receipts ... ..         | 930,236    | 1,072,963  |
| Goods receipts ... ..             | 4,632,293  | 5,240,073  |
| Gross receipts ... ..             | 6,657,118  | 7,521,179  |
| Working expenses ... ..           | 5,376,357  | 5,940,411  |
| Net receipts ... ..               | 1,280,761  | 1,580,768  |

Total receipts from passengers showed an increase of £142,727, or 15.34 per cent., and the first class receipts of £517,767, which were £104,592 higher than for the previous year, represented 50.25 per cent. of all passenger receipts exclusive of Government traffic. Goods and livestock receipts improved by £611,363, or 12.03 per cent. In working expenses the leading feature was the heavy increase in the cost of fuel. The cost of locomotive running has advanced from £1,258,000 in 1939-40 to £1,531,000 in 1940-41, to £1,690,000 in 1941-42, and to £2,047,000 in 1942-43, and a continuance of even higher prices and greater scarcity has to be faced during the current financial year.

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#### Argentine State Railway Organisation and Finance

THE study of the considerable growth and development of the Argentine State Railway System in recent years is of two-fold interest. First, it enables the achievements in public transport under State enterprise to be appreciated and at the same time provides valuable material for students of railway economics. Secondly, it allows a clear insight to be obtained into Argentine policy relating to public transport services.

The State Railway System is governed by an Administrative Council and is a department of the Ministry of Public Works; the services of the company-owned lines are supervised by the Directorate-General of Railways, also a department of the same Ministry; and the Ministry of Public Works is responsible to Congress. Broadly, the Minister of Public Works exercises the same functions as to railways as the Minister of Transport used to do in Great Britain before the war, though the Argentine Minister of Public Works covers a much wider domain, as the sub-joined statement shows:—

|   |   |   |   |
|---|---|---|---|
| <i>Argentine Ministry of Public Works</i> |   |   |   |
| Administration of the State Railways.     |   |   |   |
| General Directorate of Railways.          |   |   |   |
| "   | " | " | Irrigation.                                   |
| "   | " | " | Navigation & Ports.                           |
| "   | " | " | Architecture                                  |
| "   | " | " | Accountancy.                                  |
| "   | " | " | River Riachuelo.                              |
| National Roads Board.                     |   |   |   |
| "   | " | " | Drainage & Water Board.                       |
| "   | " | " | Railwaymen's Pensions Board.                  |
| "   | " | " | Committee for the Co-ordination of Transport. |

The Administrative Council of the State Railways is engaged solely on the construction and operation of lines owned by the Federal Government. Railways constructed under Provincial concessions, or owned by Provincial Governments, are subject

to the laws and authorities of the provinces in which they are located. The Administrative Council is composed of five of the heads of departments detailed below, that is, the General Manager, Sub-General Manager, Engineer-in-Chief, Operating Manager (Commercial), and Chief Accountant. The Operating Manager (Technical) and Legal Adviser are not members. In effect, the Administrative Council is at once a Board of Directors and a Chief Officers' Conference and deals not only with the operations of the railways, but also with matters which, under joint-stock ownership, are usually the concern of the Board of Directors, with the important exception of finance, which comes under the Ministry of Finance, in conformity with Government policy applicable to all branches of State activity.

The organisation of the State Railway Administration differs from English practice, as the following allocation of responsibilities between the several chief officers shows:—

|                                       |
|---------------------------------------|
| General Manager.                      |
| Sub-General Manager.                  |
| Engineer's Department:—               |
| Engineer-in-Chief.                    |
| Mechanical Engineer.                  |
| Superintendent of Studies & Projects. |
| Superintendent of Construction Works. |
| Operating Department (Technical):—    |
| Manager.                              |
| Traction Superintendent.              |
| Chief of Movement.                    |
| Way & Works Maintenance Engineer.     |
| Operating Department (Commercial):—   |
| Manager.                              |
| Traffic Superintendent.               |
| Stores Superintendent.                |
| Rates and Fares Superintendent.       |
| Cashier.                              |
| Statistician.                         |
| Accountant's Department:—             |
| Chief Accountant.                     |
| Chief Book-keeper.                    |
| Superintendent of Disbursements.      |
| Superintendent of Revenue Audit.      |
| Legal Department.                     |

The foregoing might, perhaps, be described as the "General Staff." The State System is composed of six different railways, each of which has its own local organisation to suit the particular conditions, but on the General Staff falls the responsibility for all operations and standardisation of procedure as far as practicable.

As to finance, the principles followed by the Argentine Government differ widely from those normally observed under joint-stock enterprise. Generally, it is customary for surplus net revenues from the working of the lines to be ploughed back into the business in the form of improved services, modernisation of equipment, reductions in rates and charges to foster the development of new industries and the construction of new lines rendered desirable for reasons of higher policy or on military grounds. Interest on State loans issued to finance large expenditures is treated as a direct charge on the National Budget and the cost is thus borne by the whole community in the form of taxation. The procedure is in sharp distinction to the practice of privately-owned railways, which usually endeavour so to fix their scales of charges as to ensure that the users of the services shall bear the interest payable on the capital employed in the undertaking. One result of the Argentine policy is that the railways can be financed under the cheapest possible conditions; the customary rate of interest payable on Government loans varies from 2½ per cent. to 4 per cent. per annum, which is considerably lower than the rates customarily required on the debentures and shares of joint-stock railway companies if a steady flow of new money is to be assured. Moreover, every Argentine Government loan is subject to a sinking fund, from the time it is issued until its complete extinction. A proportion of all loans is paid off each year, either by purchases in the open market when quotations are below par or by drawings when they are at or over par. Thus, there is little risk of the investor losing his capital and, from the standpoint of the nation as a whole, there is the advantage that the cost of the railways is written down constantly and there is no risk of over-capitalisation.

The far-reaching effects of this financial policy become evident when joint-stock railway companies find themselves in competition with State-owned lines. In Argentina, State railways are to be found in all the 14 Provinces. Nearly every privately-owned company has to compete with the State services and their rates and charges are governed to a considerable extent by State Railway policy in such matters.

Turning to the financial results of working, both income and expenditure are subject to the budgetary system of control.

Forecasts of receipts and expenses are included in the annual estimates of the Ministry of Public Works and are subsequently embodied in the national budget by the Minister of Finance.

|                             | Receipts | Budget<br>\$ m/l. | Actual<br>\$ m/l. | % Actual<br>to budget |
|-----------------------------|----------|-------------------|-------------------|-----------------------|
| Passengers                  | ...      | 14,500,000        | 15,108,493        | 104                   |
| Goods                       | ...      | 82,000,000        | 87,594,301        | 106                   |
| Luggage                     | ...      | 120,000           | 127,360           | 106                   |
| Parcels                     | ...      | 1,850,000         | 2,025,230         | 109                   |
| Telegrams                   | ...      | 240,000           | 252,703           | 105                   |
| Miscellaneous               | ...      | 2,700,000         | 3,841,016         | 142                   |
|                             |          | \$101,410,000     | 108,949,103       | 107                   |
| Expenditure                 |          |                   |                   |                       |
| Way & Works Maintenance     | ...      | 12,487,361        | 10,489,081        | 84                    |
| Locomotive Maintenance      | ...      | 10,250,445        | 8,983,128         | 88                    |
| Carriage Maintenance        | ...      | 2,309,212         | 2,140,817         | 93                    |
| Goods Stock Maintenance     | ...      | 5,627,682         | 4,684,116         | 83                    |
| Locomotive Running Expenses | ...      | 35,628,099        | 33,489,482        | 94                    |
| Vehicle Running Expenses    | ...      | 2,402,389         | 1,739,279         | 72                    |
| Traffic Expenses            | ...      | 16,452,148        | 15,163,739        | 92                    |
| Train Services              | ...      | 4,150,345         | 3,902,403         | 94                    |
| Management                  | ...      | 5,049,408         | 4,726,617         | 94                    |
| Sundries                    | ...      | 1,120,490         | 1,328,433         | 119                   |
| Ancillary Services          | ...      | 858,480           | 949,793           | 110                   |
| Motor Coaches & Trailers    | ...      | 3,376,768         | 3,488,415         | 103                   |
| Cable Railway               | ...      | 42,845            | 39,437            | 92                    |
|                             |          | \$99,755,672      | \$91,124,740      | 91                    |

The comparison above between the budget estimates and the actual income and expenditure for 1941, the last year for which the information is available, are of interest alike to advocates and opponents of the budgetary system of control of railway operations.

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### Railway Staff Negotiating Machinery

THE threat of railway strikes in the United States brings to mind the fact that despite the very heavy burden which the railway companies have been carrying since the outbreak of war, often under very difficult conditions, there have been remarkably few instances of labour troubles. This has been due largely to the railway companies' staff negotiating machinery, which is probably more advanced and comprehensive than that of any other industry in the country. This machinery has been evolved over a number of years, but its fundamental principles for discussion and negotiation had their origin in the practices of the various railways before the amalgamation of the railways and, subsequently, in the provisions of the Railways Act, 1921. The existing schemes of machinery for salaried and conciliation grades concerned in the operation of the railways, came into force on March 1, 1935, although the changes made then did not affect materially the existing principles but related more to procedure at the higher stages of negotiation than to the scope and extent of the machinery.

The arrangements as a whole are subject to the jurisdiction of a joint committee of railway staff officers and representatives of the National Union of Railwaymen, the Associated Society of Locomotive Engineers & Firemen, and the Railway Clerks' Association. This committee deals with any points arising as to the interpretation of procedure and the operation of the scheme. The various stages in the machinery are (a) local discussions (frequently through the medium of local departmental councils); (b) sectional councils; (c) reference by the trade unions to the headquarters of the railway; (d) joint meetings of Railways Staff Conference and unions; or Staff National Council; (e) Staff National Tribunal. For the benefit of our readers who are not conversant with the procedure, a general outline of the various stages is given below.

The initial stage of discussion at the station or depot concerned is between local representatives of the staff and the local officials. Where the staff number 75 or over, the arrangements permit the establishment of local departmental committees, consisting of representatives of the departmental staff, elected by ballot, and the local officials. These committees afford a recognised means of communication between the staff and the management which enables the staff to be given a wider interest in their work and the conditions under which it is performed. These discussions cover such matters as working hours and meal intervals, holiday rosters, staff accommodation, improvement in operating methods, etc., and they have been of particular benefit in dealing with circumstances arising out of the war. During the war the basis of the normal discussions has been widened by more free and informal talks on methods for securing the speeding up of railway transport generally.

The next stage is discussion by sectional councils, of which there are five on each railway, each catering for a principal



section of the staff engaged in railway operation, that is, (i) salaried and supervisory staff, (ii) enginemmen and locomotive shed grades, (iii) operating staff, (iv) goods station, dock and cartage staff, and (v) permanent way and signal and telegraph staff. The sectional councils are composed of the elected representatives of the staff concerned and headquarters and divisional officers. These councils, which usually sit at least twice a year, consider suggestions as to operating, working, and kindred subjects, and other matters in which the railways and their staff are mutually interested, for example, co-operation with a view to the securing of greater efficiency and economy, the well-being of the staff, and general principles governing recruitment and tenure of service. They also deal with the local application of national agreements relating to standard salaries, wages, hours of duty, and other standard conditions of service. Apart from matters arising out of the interpretation of the national agreements, sectional councils discuss matters such as operating arrangements, equipment of goods brake-vans, suggestions for making certain parts of locomotives more accessible, types of coal used on various classes of locomotives, and housing difficulties of staff transferred. The meetings provide a very useful medium for thrashing out difficulties and settling differences of opinion between the management and staff on matters which are not purely national in character.

Should a sectional council not be able to reach agreement, the arrangements provide for the railway trade unions to refer the point in dispute to the headquarters of the railway concerned. If agreement is not reached, the point may be referred for discussion at joint meetings between the Staff Conference—consisting of the principal staff officers of each railway—and the trade unions concerned. Proposals to vary a national agreement may be referred by either party for discussion at joint meetings. The next stage is that questions affecting standard salaries, wages, hours of duty, and standard conditions of service, provided they are not of a minor or relatively local character, may be referred to the Staff National Council which is composed of the Staff Conference and representatives of the three trade unions.

Questions of major importance may subsequently be referred to the final stage in the machinery of negotiation, that of the Staff National Tribunal. This body consists of two members not connected with the railway industry (one selected by the railways and one by the trade unions), and an independent chairman appointed by agreement or, failing agreement, by the Minister of Labour after consultation with the parties. If desired by the parties, and this is generally the case, assessors consisting of railway and trade union officials may be nominated to serve on the tribunal in an advisory capacity. Issues involving an interpretation of the national agreements, or of medium or major importance may by agreement be referred for determination by the independent chairman.

The machinery of negotiation for workshop staff is somewhat similar to that for the salaried and conciliation staff, although it is not on quite the same lines. It provides for shops, works, and departmental line committees, discussions between the staff representatives of the railways and of the trade unions, and a National Council. The Railway Shopmen's National Council comprises the Railway Staff Conference and representatives of the trade unions concerned, that is, the Amalgamated Engineering Union, the Confederation of Shipbuilding & Engineering Unions (comprising some 30 craft unions) and the National Union of Foundry Workers, and National Union of Railwaymen. If agreement is not reached at the National Council, disputes may be referred to the Industrial Court on agreed terms of reference.

The machinery of negotiation for staff employed in railway electricity generating stations and sub-stations, and on high tension cables between them, is similar to that for the shop staff. There are also schemes of negotiation for workshop supervisory staff and police which, though differing in detail, contain the essential features of those mentioned above.

Apart from the operation of this machinery, schemes are also in operation on each main-line railway whereby individual members of the staff may submit direct to the management suggestions in connection with the development and efficient and economical working of the railway. For useful or meritorious suggestions monetary awards are given by special committees who are not cognisant of the name or grade of the employee submitting the suggestion. It will be appreciated from the foregoing brief description that every railwayman has facilities for making suggestions concerning his conditions of service, the working of the railway or the well-being of the staff, in complete confidence that his aims or ideas will be sympathetically considered by his elected representatives, his immediate supervisors, or the railway management. The various schemes of negotiation have promoted a feeling of confidence and mutual goodwill which has contributed very largely to the successful

operation of the railways under the heaviest burden they have ever been called on to undertake.

Finally, and quite apart from the machinery of negotiation, every person regularly employed by the main-line railways or their joint lines and the Railway Clearing House has the right to submit an application to the management through his immediate superior on any matter affecting his employment, and if dissatisfied with the decision he has the right of direct access, by appealing in writing, to the management.

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### Condescension on the Part of our Critics

**RECOGNISING** that they are at the service of the community, our railway companies are always glad to have attention drawn to weak spots in their working arrangements. We are sure that any of the companies will examine constructive suggestions carefully and will not reject them without good reason. Many a modification in timetables or improvement in facilities has originated from a friendly hint dropped by an observant traveller. The railways also welcome more general criticism directed at their policy or operating methods, provided that it is based on a thorough study of the situation with the aid of such facts and figures as are accessible to outside investigators. We have sometimes been surprised to find that representations made by an obscure correspondent have been answered as fully as if they had come from the City Editor of *The Times* or had appeared in *The Economist*.

There is still another type of criticism which railwaymen do not appreciate. Its staple form is a vague suggestion that our railways are either inefficient or, at all events, are not run with the same energy and enterprise as ordinary commercial concerns. At different times we have heard remarks of this sort uttered with an air of finality by traders and their traffic representatives, and certain road operators have not been backward in speaking in a similar strain. This class of criticism is not helpful. We have been surprised and amused at the complacency with which persons engaged in manufacture call on the railways to put their house in order—without specifying what is wrong—when it is generally admitted that industrialists in this country have fallen far behind America in promoting research and experiment. From the early days of railways many commissions and tribunals at intervals have probed exhaustively into transport questions, but not one has ever drawn an indictment against our railways such as the Balfour Committee pronounced on our iron and steel trade about fifteen years ago.

It is often forgotten that the railways were themselves the first to co-ordinate road and rail and water transport. The rapid improvement in the reliability of road-motor vehicles was due in the same measure to experiments made by the railways with early types of steam and petrol lorries. At the present time, the railways operate, in round figures, ten thousand road-motor vehicles, and they found that their road transport supervisors had little to learn from Carter Paterson & Co. Ltd. and Pickfords Limited when these long-established and successful road businesses were acquired by the main-line companies. We used to watch with interest the growth of the Great Western Railway motor fleet, as it was built up under the care of Mr. F. C. A. Coventry, and always thought that its administration might safely be taken as a guide by any road operator.

If we look at other ancillary businesses, where the railways possess by no means a monopoly, we see the companies more than holding their own with their competitors. Before the war, railway steamships were unrivalled in their own sphere for speed and accommodation. Railway hotels are in the first rank for comfort and service. It has paid more than one company to take over its commercial advertising from outside contractors and the display of advertisements since has been done in better style. Even in the somewhat humdrum work of supplying grain sacks, the companies helped the Minister of Agriculture to gather a bumper harvest by increasing the stock of sacks and quickening distribution. The railways, too, find it economical to print a large proportion of their tickets and at least one company owns a well-laid-out works capable of turning out ordinary printing of any description with great despatch.

It seems passing strange that the railways should succeed in all these activities and yet be lacking, if certain critics are to be trusted, in the ability to perform the work of carrying passengers and goods. Our own feeling is that the companies have been too complacent in not rounding on their detractors. Perhaps few people now read James Russell Lowell's essay on a certain condescension in foreigners! It gave short shrift to strangers who spoke patronisingly of the New World. If the critics we have in mind would spend a quiet hour with "My Study Windows," as Lowell called his collected essays, we might have a little less condescension in some of the comments on our railways which are at times bandied about rather light-heartedly.

## LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

### Locomotive Fuel Economy

390, Wakefield Road,  
Huddersfield. December 8

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The report on page 559 (December 3, 1943) of Mr. L. P. Parker's interesting paper on this subject raises once more the question of differences between theory and practice. The paper recommends that the fire should be about 6 in. deep but this seems very much less than the depths normally used and one is tempted to ask whether such a fire would remain on the bars in a normal locomotive working at all heavily.

By contrast, the interested observer can see that on the Great Western Railway normal practice is to use a very thick fire, at least at the back of the box. A fire built up to the centre of the fire hole is usual on the larger G.W.R. engines, and this means that the thickness at the back is something like 2½ feet. In recent years there seems to have developed a tendency to adopt the same method on other railways, but from my own observations I would say it has been the regular practice on the Great Western Railway for many years, and one could not say that average locomotive performances on that railway suggest any serious inefficiency.

This divergence in firing practice may be associated with the use of Welsh coal on the Great Western Railway but the difference between the 6 in. thickness now recommended and about 5 times that amount commonly used makes one wonder whether the matter can be so critical after all. It would be interesting to have authoritative views on this point.

Yours faithfully,  
W. A. TUPLIN

### Hot-Water Locomotive Boiler Washing

14, Ashley Place,  
Westminster, S.W.1. December 13

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have read with much interest the article on locomotive fuel economy which appeared in your December 3 issue, consisting of extracts from a paper read by Mr. L. P. Parker, Locomotive Running Superintendent (Eastern Section), Southern Area, L.N.E.R. I notice the various avenues that have been explored in this connection, and that account is taken of a saving of 5½ lb. of coal a mile, saved under certain conditions of locomotive working, and that mention is made of "idle time."

I would like to draw attention to another avenue of savings in fuel; that in respect to boiler washing, where savings can be effected in fuel and also in idle-time. Under cold-water methods of washing-out, approximately 6 cwt. of coal are used to raise steam from cold, whereas by using a well-designed hot-water boiler-washing plant, approximately 4 cwt. 3 qtr. of coal is used for the same purpose after allowing for the coal used to provide steam for operating the plant, making a saving of approximately 1 cwt. 1 qtr. of coal per locomotive washed out.

Further, under cold-water methods, a locomotive is out of service for an average of 18 hr., whereas, by using hot water, this time is reduced to an average of 3 hr., showing a saving of an average of 15 hr. per locomotive. At a running shed where say 60 locomotives are washed out each week, this represents a saving of approximately 211 tons of coal a year, in addition to 15 hr. per locomotive in idle time.

I suggest, therefore, that hot-water boiler washing should be

the standard method of washing out, and should be adopted at all important running sheds.

Yours faithfully,  
E. J. H. SOUTH,  
Chief Engineer,  
Economical Boiler Washing Co. Ltd.

### Locomotives for Africa

Sudan Railways,  
Atbara, Sudan  
November 27

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Both in your editorial notes on page 275 of your issue of September 17 and in your article on page 284, dealing with the new type Ministry of Supply locomotives for use in Africa, the design is described as "broadly" and "in general proportions and details" following Sudan Railways practice. In actual fact these Ministry of Supply locomotives are identical in every respect with our "220" class Pacifics as originally supplied in 1927, with the exception of the provision of oil-burning equipment and the cutting down of the chimney, dome, and cab to suit other than Sudan loading gauges.

The photograph you publish on page 285 shows the first of our "22" class, ten of which were supplied by the North British Locomotive Co. Ltd. in 1927 and six by Kitson & Co. Ltd. in 1931. Subsequent modifications, which are not incorporated in the Ministry of Supply locomotives, include the provision of piston-valve heads with narrow rings, and combined pressure-relief valves, and cylinder drain cocks.

Yours faithfully,  
C. H. HILL,  
Chief Mechanical Engineer

### Streamline Locomotives

6, Armitage Road, Birkby,  
Huddersfield. December 10

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Recent naming ceremonies—those superfluities still indulged in despite total war—reveal the fact that the L.M.S.R. is still producing streamline locomotives. In the case of the "Coronation" design this poses the question of what useful purpose is served in wartime by the addition of streamlining to this class of locomotive except the doubtful consolation of providing them with what has generously been described as an air raid shelter.

It is extremely doubtful whether the advantages gained by streamlining can be realised in the operating conditions which obtain today. Off-setting any fancied advantage is the addition of over 2 tons of steel per locomotive which might usefully be employed elsewhere, reduced accessibility of the mechanism when maintenance time must be cut to a minimum and concealing the form of what is perhaps the most impressive locomotive in the country. One might reasonably expect omission of streamlining during wartime when there are no high-speed schedules and when the L.N.E.R. has removed some of the shrouding from pre-war streamline locomotives. Again, has not Mr. Bulleid gone to fantastic lengths to reduce the amount of steel used in the recent so-called "austerity" goods engines, so that even such elementary necessities as running-boards and splashers, to say nothing of aesthetic considerations, have been rigorously excluded from the design?

Streamlining has not yet died but L.M.S.R. Pacifics Nos. 6230-6234 show what might have been but for the intervention of a fashion, which the impact of war has reduced to an absurdity.

Yours faithfully,  
R. HOWARD

### Publications Received

**A First Guide for Quality Control for Engineers.** Press Office, Ministry of Supply, Adelphi, London, W.C.2. 5½ in. × 8½ in. 37 pp. Numerous folding charts. Paper cover.—This handbook has been compiled by Dr. E. H. Sealy of the Ministry of Supply, Advisory Service on Quality Control; it is a simple operational guide for those who wish to begin using quality control in the machine shop, and who have no previous statistical knowledge. In the foreword, Dr. H. J. Gough, Director-General, Scientific Research & Development, introduces the book as "one of the outward signs of the efforts of the Ministry of Supply to assist the industry of this country to reach yet new pinnacles of pro-

duction and to make the fullest possible use of the limited available manpower." The book aims to provide a set of rules for engineers who have not the time to study the full theory. Very few explanations are given; the procedure is simply set out step by step and illustrated by numerous examples quoted from actual factory experience. The mathematical derivations of the various factors and criteria used in the book are briefly sketched in an appendix, but this appendix is intended only for the mathematically minded.

**Diesel Locomotives and Railcars.** By P. R. Agarwal, B.Sc. (Eng.), A.M.I.E. (Ind.). 9½ in. × 6½ in. 26 pp. Illustrated. Price 9d.—We have received from the Publications Department at Delhi, of the

Railway Board of India, technical paper No. 311, the full title of which is "Diesel Locomotives and Railcars, their development and suitability, with special reference to their future in railway traction in India, and post-war reconstruction". The paper opens with a brief history of diesel development, not only in India, but in other parts of the world. Consideration is then given to the suitability of diesel traction for various purposes, taking into account all the different items of cost. Tables are given comparing the running costs of diesel and steam shunting locomotives in India and America, also of steam trains and railcars in India. The paper was reproduced in *The Railway Gazette Diesel Railway Traction Supplement* for October, November, and December, 1942.



## The Scrap Heap

As part of a test introduced by officer-selection boards in India, candidates for commissions are required to prepare plans and make decisions in the midst of "battlefield noises" reproduced by gramophone records. The most effective irritant noise is stated to be that provided by a record of a London Underground train.

### SHE WAS "STATIONMASTER" FOR 39 YEARS

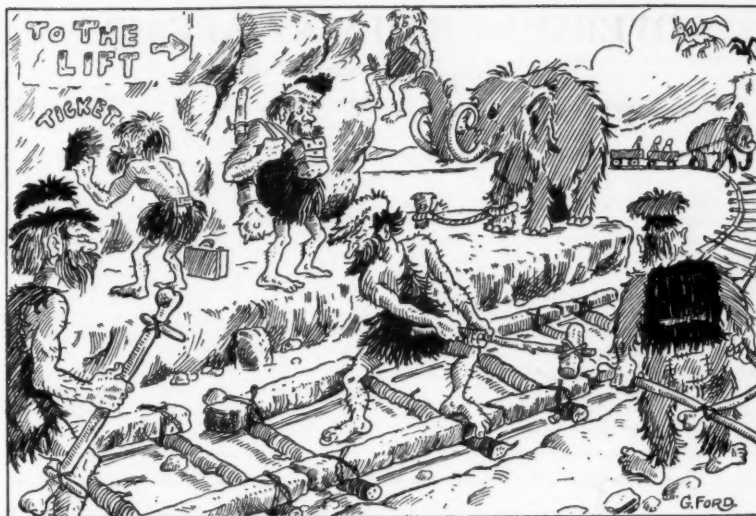
A hundred years ago, the wives of platelayers on the Leicester-Swannington Railway (now part of the L.M.S.R.) were employed as signalwomen and crossing-keepers. The first "stationmistress" was Mrs. Argyle, who was also booking clerk, shunter, and signalwoman, and managed the station of Merry Lees from 1832 until 1871, when it was closed.

### THE SANTA FE RAILROAD

"The Santa Fé" is short for the Atchison, Topeka, & Santa Fé Railroad which operates about 10,000 miles of line between Chicago and the Pacific Coast. The small town of Santa Fé is the capital of the State of New Mexico and its name has also been severely clipped; its full title is Villa Real de Santa Fé de San Francisco. So says Mr. Bernard Newman in his lively book, "American Journey," which describes a wartime trip in the States and Canada. He also explains that "an American car carries a plate giving its number and the name of the State . . . the plate of your car in Santa Fé would read: 'New Mexico. 3456. Land of Enchantment!'" We are told that the claim of the publicity agent is well founded!

### PRE-WAR TRAVEL

A photograph of famous British trains, including the "North Atlantic Express," has served to remind me of some of the changes which the war has brought about in travel arrangements. The "North Atlantic Express," which was, I believe, the first train on the N.C.C. line to be given a name, usually consisted of five coaches of beautifully finished stock, one of which was a buffet and kitchen car. Making one stop at Ballymoney, it covered the distance between Belfast and Portrush in 80 min. The "Portrush Flyer," which had also one stop—at Portstewart—was another popular train on the same route, and the "Golfers Express" on Saturdays equalled the run



Mr. Charles E. Lee in his book "The Evolution of Railways" (The Railway Gazette, 6s.) traces the germ of railways back to Babylonian times. Mr. G. Ford seems to have carried his researches back further into the misty past

of the "North Atlantic Express." Since the war these trains have disappeared from the N.C.C. timetables, but the coaches have been pressed into use to make up other trains employed in maintaining the ordinary service.—"The Roamer" in "The Belfast News-Letter."

No less than 1,585,914 old razor-blades, together weighing 33 cwt., have been collected at Southern Railway stations as the result of a salvage scheme originated by the staff. Sales of these have realised £531, all of which has been sent to the R.A.F. Benevolent Fund. Some of the blades are nearly 30 years old, and include makes which are unheard of in these days.

### WINDOWS

Because so many of the window straps have been stolen from L.N.E.R. carriages, the company is proposing to fit wooden blocks by which windows may be opened.

It may be recalled that, during the latter stages of the last war, the theft of leather straps from various railway compartments became extensive, mainly because of leather shortage for shoe repairs. We recall that on the old L.B.S.C.R., which had rather wide straps, perverted

ingenuity discovered a method for cutting half a sole by means of diagonal cuts avoiding the punched holes to retain the window in various positions. Replacements were in webbing with metal eyelet holes.

Magnesium Elektron Limited, of Clifton Junction, has taken delivery of no fewer than 7,500 loaded wagons in the last 12 months without any detention. The efforts of the firm's Transport Manager, Mr. W. B. Whaley, and his staff in thus supporting so actively the railway Quick Turnround of Wagons campaign has earned a letter of thanks from the L.M.S.R. District Goods Manager.

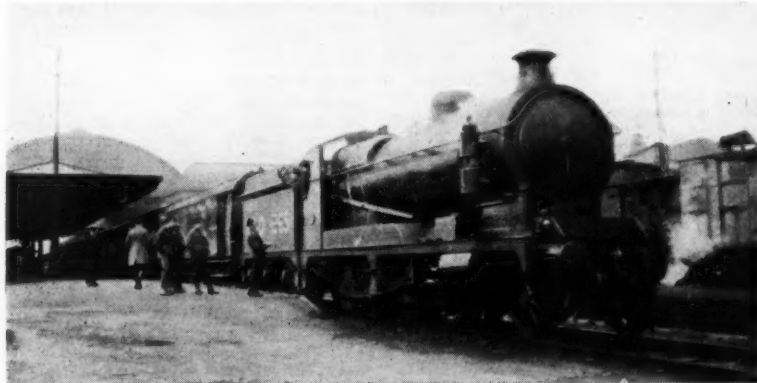
### MR. EMANUEL SHINWELL, M.P., ON COMMITTEES

We speak of "sweet seventeen" but we also speak of "lucky seven," and I prefer the lucky seven to the sweet seventeen. At any rate, it does seem to me that a small, compact, efficient, well-equipped, well-informed and presumably intelligent Committee of seven would be more useful than an unwieldy, heterogeneous Committee of 17.—From "Hansard."

### TAILPIECE

Was your journey necessary  
The last time you went away?  
And were you really satisfied  
With all you had to pay?  
I imagine "Squander-bug"  
Is now laughing up his sleeve,  
And jingling, too, that hard earned cash  
Which you will later grieve.  
And when you got into the train  
Did you get a corner seat?  
Or were you in the corridor  
And troubled with cold feet?  
Did you enjoy your "forty-winks"  
Between the halts and stations?  
Or were you crushed and knocked about  
With troops and their "relations"?  
I guess you wished you'd stayed at home.  
For which the "boys" are yearning;  
Remember this at Christmas-tide  
And keep the Home-fires burning.

W. E. N.



Cologne-Calais leave train, 1919, at Düren. The train is headed by a Robinson 2-8-0 type R.O.D. locomotive



## OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

### VICTORIA

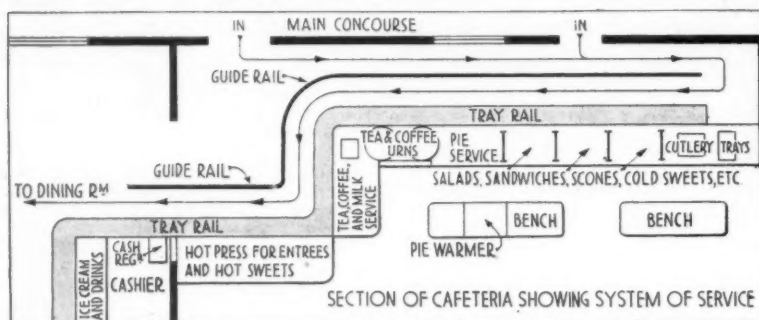
#### Dining Room Conversion at Spencer Street

By reason of the shortage of staff in war conditions, it was decided last April to convert the dining room on the main concourse of Spencer Street Station, Melbourne, into a modern cafeteria. The interior of the kitchen attached to the dining room has been altered substantially to provide for a long self-serving counter on which are stacked trays, cutlery, salads, cold sweets, scones, sandwiches, pies, entrees, and other light refreshments.

As may be seen from the accompanying sketch plan, a guide rail runs parallel with

\$608,000. These stations are between Richmond and Indianapolis, on the main line from Pittsburgh to St. Louis.

At Cincinnati, the Union Terminal Company is carrying out an extension of the main station, including the provision of four additional through tracks, and a re-modelling of the station entry to provide an extra mail and express track in the north area. An order has been placed with the Union Switch & Signal Company for the signal material required to expand the present electro-pneumatic signalling installation. The order covers the necessary addition to the interlocking frame, which has 231 levers, also electro-pneumatic switch movements, and 23 additional a.c. track circuits.



New arrangement at Spencer Street Station, Melbourne

the counter. Customers enter the cafeteria through two doors, and make their way to the northern end to pick up their tray. The cashier's desk is located at the other end of the counter, and, after payment, customers pass into the former dining room to consume their meal, leaving it eventually by what was previously the entrance door to the dining room.

The kitchen has thus been converted to cafeteria service on the same general principle as that widely adopted in the U.S.A., which has been used extensively also in the teashops of Great Britain since the outbreak of war. A useful feature of the Spencer Street arrangements is that customers requiring only ice-cream or fruit juice drinks may obtain them at a separate counter, without impeding the main flow.

### UNITED STATES

#### New Works

Extensive improvements to its freight facilities in and around the city of Indianapolis are being put in hand by the Pennsylvania Railroad, at an estimated cost of \$2,000,000 and form part of the company's \$20,000,000 freight programme in course of execution in its western territory. East of Greenfield, Indiana, 10 miles of double track on easier grades are being built to replace a single-track main line, and sidings are being extended, at a cost of \$825,000; at Hawthorne yard, Indianapolis, two relay tracks, of 150 wagons capacity each, and coal and water facilities, are being provided at a cost of \$192,000; at Ben Davis, Indiana, the eastward siding is being extended to accommodate four average freight trains simultaneously (about 450 bogie wagons, with engines and cabooses), and the westward siding to hold 232 wagons, at a cost of \$227,500; and new sidings at Clayton, Dublin, Doreith, and Centerville will cost

The Baltimore & Ohio Railroad has applied to the Interstate Commerce Commission for authority to construct a line, 3 miles long, from Corven to Donaldson, West Virginia, to relieve an existing single-track between these points.

#### C.T.C. Improvement

A striking improvement in operation has been achieved by the Missouri-Pacific Railroad on its main freight-route between St. Louis and Gale, Illinois, 112 miles long, as the result of having installed centralised traffic-control over the two sections of this line which are of single track—27 miles from Roots to Raddle, and 4½ miles from Howardtown to Halsey. These single tracks are among the most busily occupied in the United States. Before 1938, when an average of 55 trains a day was being handled by train order and timetable, it was not unusual for freight trains to take 3 hr. to cover the 27 miles between Roots and Raddle.

With the help of the c.t.c. installation completed in 1938 by the General Railway Signal Company, the average number of trains handled daily has increased to 70; and a maximum of 84, some of them of over 100 bogie wagons in length, have used it in a single day. A census taken on a recent day showed 77 trains passing, and many took less than 90 min. for the 27 miles; one train of 7,390 tons took no more than 108 min. to cover this section.

#### Twentieth Century Boiler Explosion

As recorded in the September 10 and 24 issues of *The Railway Gazette* by an extraordinary coincidence the famous Twentieth Century Limited express of the New York Central System was involved in a derailment on the same night as the Congressional of the Pennsylvania Railroad at 4.35 a.m. on September 7. The train involved was bound for New York, and the accident occurred on the four-track main line two

miles east of Canastota and 24 miles east of Syracuse, New York State. It is now confirmed that the derailment was due to the bursting of the boiler of the locomotive, one of the streamlined 4-6-4s used on this service, which caused the death of the driver, fireman, and a second fireman who was on the footplate as part of his training. The engine, tender, and eleven vehicles (baggage van, lounge car, seven sleeping cars, and two dining cars) left the track, but no passenger suffered any serious injury. No information is yet available as to the cause of the boiler explosion.

### BRAZIL

#### Improving the Main Southern Route

The question of improving the facilities on the main route between Rio de Janeiro and Porto Alegre, a distance—since certain re-alignments were effected a year or two ago—of 2,664 km. (1,655 miles), formed the subject of a detailed paper presented recently to the Brazilian Railway Engineering Society by Senhores A. do Amiral and Mario Dias.

Four railways, the Central, Sorocabana, Paraná-Santa Catharina, and Rio Grande do Sul are concerned. The time taken by a fast passenger train is 95 hr. 23 min., or 82 hr. excluding stops. The highest speed, including stops, is made on the Central section of the route, and the lowest on the Paraná line; the Sorocabana and Rio Grande lines come second and third, respectively. The Paraná and Rio Grande sections have the highest percentage of standing time—about 15 per cent. in each case—out of the total running times on their systems. The highest average speed, excluding stops, is made by the Central, between Rio de Janeiro and San Paulo, at 48 km.p.h. (30 m.p.h.).

The authors contended that it was generally recognised that a considerable improvement was called for. They suggested re-alignments; improved rolling stock; locomotives of higher power, with greater fuel and water capacities to eliminate stops; better coaling and watering facilities; up-to-date signalling; and heavier permanent way and better ballast. Apart from those improvements, it should be possible to shorten the journey time appreciably; and a conference of the managements concerned was suggested. It was proposed, as immediately practicable, that express railcars should be run between Rio de Janeiro and San Paulo, to arrive about two hours before the departure of the Sorocabana night train. The inclusion of dining cars on the next day-portion of the route, over the Paraná lines, was recommended; also the cutting of intermediate stopping-times and other improvements, to afford a reduction in total journey time of 10 hr. 15 min.; the run then would be made in 85 hr. 8 min., giving a commercial speed of 31.3 km.p.h. (19.5 m.p.h.), and an average speed without stops of 40.8 km.p.h. (25.3 m.p.h.) against the present figures of 26 and 36 km.p.h. (16 and 22.3 m.p.h.), respectively. A number of bridges would need strengthening, and certain station layouts, it was urged, ought to be modified.

Air transport naturally offered the prospect of attractive facilities in a country like Brazil; but the railways could be sure of retaining a good deal of patronage by giving comfortable and speedy services between the principal cities. The Brazilian Railway Engineering Association, however, already had done much to remedy the state of affairs, and the authorities were alive to the necessity of improving the efficiency of rail communications.

## Railway Fuel Economy

### Wartime fuel-conservation methods practised by British railways to supplement their already highly-developed fuel-economy organisations

THE third railway fuel-economy conference, which, as recorded in our December 3 issue, was held at Glasgow on November 24, was addressed by Mr. F. H. Gee, Secretary of the L.M.S.R. Fuel Efficiency Committee. He said that Mr. Bennett had explained already that the British railways always had practised fuel economy in their own interests, as fuel represented their largest single purchase. The appeal from the Minister of Fuel & Power to save fuel, therefore, came to an undertaking already organised, capable, and willing to intensify its efforts in war conditions.

Mr. Gee said that fuel was purchased by central offices of each of the companies and allocated for use by those offices in conjunction with the using departments, bearing in mind suitability for jobs, suitability for handling at depots, and economic haulage from collieries to depots. Fuel inspectors with specialised knowledge paid regular visits to collieries holding railway contracts to ensure that supplies were drawn from the correct seams, and were properly prepared, both by screening and cleaning, according to specification.

The Railway Executive Committee had appointed a coal committee, covering both the purchasing and using branches of each company, the duty of which was to arrange for the efficient distribution of all coals supplied by arrangement with the Ministry of Fuel & Power which were considered common supply; to arrange for equitable distribution of stocks between the companies, allowing for the diversion of coal to higher priorities such as overseas operational purposes; and to explore possibilities of alternative fuels.

The responsibility for the efficient use of such fuels as were available rested with the using departments. At the larger depots there were specialised technical officers who concentrated on the job, but even the smaller depots were supervised by such officers. The first job in tackling any problem was to measure it. It had been stated that the railways used some 16 million tons of coal a year, which included a wide variety of coal, briquettes, etc. The user between the departments was broadly:—

|   | Large coal<br>briquettes<br>and ovoids | Sized<br>fuels<br>slack, etc. |
|---|--|-------------------------------|
|   | Tons                                   | Tons                          |
| Locomotives ... ..  | 14,350,000                             | —                             |
| Generation of electricity... ..                             | —                                      | 870,000                       |
| Manufacturing processes and<br>repair workshops ... ..      | 160,000                                | 185,000                       |
| Domestic heating, stations, hotels,<br>offices, etc. ... .. | 175,000                                | 50,000                        |
| Floating craft, vessels, dredgers,<br>etc. ... ..           | 110,000                                | 80,000                        |
| Ancillary purposes ... ..                                   | 120,000                                | 35,000                        |
| Manufacture of town gas ... ..                              | —                                      | 85,000                        |
| Total ... ..  | 14,915,000                             | 1,305,000                     |

In addition, 195,000 tons of coke (hard metallurgical, furnace, and gas) and 16,000 tons of oil (fuel, diesel, gas enriching, gas oil, etc.) were used each year. The principal items were the subject of other conferences, in the reports of which would be seen the detailed steps taken in respect of locomotive fuel, C.M.E. workshops, electricity for traction, and so on. He proposed to concentrate on the special organisational steps taken to meet the peculiar wartime fuel problems.

It had been said already that the railways had their own rationing system, and he thought it could be claimed that, if the public kept as close control over its consumption and allowed itself no more luxury than the railways did, the problems of the Ministry of Fuel & Power would be much easier. All solid fuel supplied for open fires and central heating throughout the railways was regulated. The allowance for open fires varied from company to company, and according to geographical latitude. The rationing system dated from 1918, and had been in operation ever since. Since the beginning of the present war it had been cut further, by as much as 25 per cent. in some cases. In that of open grates, allowances varied from 1 lb. to 2½ lb. an hour a grate, for normal-sized rooms, with additional allowances for large rooms. There was an interesting difference of opinion as to whether it was better to issue a small amount of coal and make up with additional allowances if the original was found inadequate, with concomitant tendency to encourage scrounging, or whether it was better to issue a reasonable amount at the beginning of each season and rigidly to refuse to supply more or to permit unauthorised additions. In the case of central heating, a rigid ration on a mathematical basis was, of course, not possible; but the allowances were fixed either by the engineer, or on the basis of past practice. Government orders as to periods of restriction, banking at night, and so on, were implemented rigidly. The dilution of normal supplies of coke was increasing, and in a number of cases smokebox char to the extent of 35 per cent. was being used. Records of the allowances were kept at headquarters, and it was clear that the overall control which the system permitted had resulted in considerable economies. The issues of solid fuel for these purposes during the last season had been 13,000 tons less than during the year before.

If it were possible to redesign many of the old-fashioned grates and the heating installations now existing on the railways, further economies could be made. A big effort had been put forward to make such improvements as were possible during the war with the limited amount of materials and labour available, and the railways looked forward to doing still more in that direction. Meanwhile, however, the greatest opportunity for economy must rest with every individual making the best use he could of the plant as it was, and large numbers of full-time fuel officers and fuel watchers, who carried out their duties in the course of their normal work, had been appointed. There again was room for differences of opinion as to the best organisation.

It was the normal duty of any official in charge of premises to see that fuel, along with all other railway stores, was used as economically as possible; and, although some companies appeared to think that those officials could be helped in their supervision by the appointment of individuals to keep a special eye on fuel economy and had appointed fuel-watchers in practically every one of their premises, other companies had not gone quite as far, and relied more on the

officials whose duties normally covered the work. On the whole, however, there appeared to be a tendency for more and more part-time fuel watchers to be appointed. As it was, there were probably 15,000 fuel watchers already operating in various parts of the country. A similar difference in organisation occurred in the matter of checking consumptions of gas and electricity, to see that increases, where they occurred, were explained.

In all companies meters were read at short intervals, and records sent to headquarters for scrutiny. In addition, increased consumptions in some cases were reported to full-time local fuel-economy officers for special investigation; and in other cases spot checks were made by visiting officials from headquarters. Both methods had been found in practice to be very effective, and to have revealed unnecessary consumptions of fuel which had been stopped; and it would be a bold man who would attempt to prove from the results which method were the better. By one or other of those methods all premises of the railways where fuel was used had been brought under review.

Railway hotels had been able to cut their consumption by 5,000 tons by reduction of room temperatures, elimination of decorative lighting, checking of consumption at headquarters, and so on.

The same organisation provided a means for examination of the problem of fuel substitution; as records were available of the uses to which all fuel was put. Two examples were the case of a small boiler, which previously had used best-quality coal, and which after tests had been put on to a fifty-fifty mixture of coke and smokebox char, and another similar boiler which had been put on to 100 per cent. salvage coal. In another case, two messrooms used by the staff of different departments had been merged, so that one cooking range now did the work of two. Waste wood was used for steam raising—on one railway alone 10,000 tons of coal a year had been saved in that way.

It was well known that there was a certain amount of unavoidable spillage on the railway. One company had salvaged 35,000 tons of coal in one year, and another had reclaimed 16,000 tons of colliery fines from one of its docks.

In conclusion, Mr. Gee said that he would like to express a purely personal opinion of the future. Although the railways had as good a record of fuel efficiency as any other industry, they, like other industries, had found further opportunities for saving fuel; and, although some of the steps taken might be found not to be justified commercially, after the war it was to be hoped that many of them would be continued, for there was never an excuse for waste. Indeed, their investigations had revealed opportunities for making themselves still more efficient when it should be possible to carry out larger works, and when the picture of the post-war fuel industry as concerned cost and availability of different fuels should become clear. He thought that the Minister of Fuel & Power could be satisfied from their past record that the railways would continue to contribute their share to the solution of the fuel problems of the country. They had a first class research and administrative organisation which could and would be applied to that national problem. Meanwhile, they would continue to do all possible to meet the immediate problem of releasing as much fuel as possible to assist in the successful conclusion of the war.





## The Railways of Bolivia

**Important new works are in hand to improve the international transport facilities of this land-locked country. The present railway mileage, of metre gauge, totals 1,608, of which half is British operated**

BOLIVIA, with an area of about 420,000 square miles, is the third largest of the South American republics. It has a population of about 3,500,000, and the principal cities and industries lie within the upland region, where the main wealth of the country consists of rich mineral deposits. Most of this region is at an elevation of 12,000 ft. or more above sea level, and, in view of the natural difficulties, it is not surprising that railway communication should have been tardy in development and the mileage relatively short. Bolivia has no coastal frontier, but there are two outlets to the Pacific, by the Arica-La Paz Railway in the north and by the Antofagasta Railway in the south, besides the Peruvian line from Lake Titicaca to Mollendo. Communication with Peru is by means of the steamer services on Lake Titicaca, and with the Argentine Republic, through the international line by La Quiaca, at which point the Atocha-Villazon Railway connects with the Argentine State Northern system.

Since the outbreak of war, railway traffic between Bolivia and Argentina, via the Atocha-Villazon Railway, has more than trebled, mainly as a result of increased Argentine exports. Until comparatively recently this line was operated by the South American Mining Company, but the lease has been terminated and the railway is now worked directly by the Bolivian State. With a view to alleviating the traffic congestion, two locomotives were despatched from the U.S.A. some time ago, on loan to the Bolivian State Railways. Two Argentine locomotives, also on loan, are already working on the line. For more than a year past the locomotive situation has been acute, and it is only by noteworthy and successful efforts that the increasing volume of traffic has been handled with reasonable expedition.

Two other international lines are contemplated. One of these will connect Santa Cruz, via Yacuiba, with the Argentine Northern line to Formosa on the River Paraguay. The other is part of an ambitious scheme for a transcontinental railway between the Chilean port of Arica and the Atlantic coast at Santos, in Brazil, also passing through Santa Cruz. This project was described in *The Railway Gazette* of January 24, 1941. Of the Cochabamba-Santa Cruz line, 425 miles in length, which will form part of the transcontinental railway, 75 miles to Vila Vila are finished, and 62 miles, between Vila Vila and Aiquile, are under construction. On the section between Santa Cruz and Corumba in Brazil, the length from Concepcion and on to Santa Ana has been completed, and thence to San José is in hand. About 250 miles of formation is said to be awaiting rails, which are naturally in short supply. Nevertheless, it is hoped to complete the whole railway through to Santa Cruz by the end of 1944. These sections are all being constructed by the Bolivian Government, as part of the State system.

Until recently, work on the construction of the line northwards from Yacuiba towards Santa Cruz was reported to be making but slow progress, possibly be-

cause of the use of oil pipe-lines, as already recorded in our columns. The railway, which will traverse the whole of the Bolivian oil area, is being built by the Bolivian State with the aid of Argentine finance. It is now officially reported that substantial additional finance was granted recently by Argentina to enable the Bolivian Government to proceed with the work more rapidly. It is expected that the line will be completed as far as Sanandita, the centre of the main oilfields in Southern Bolivia, by June, 1944.

It would seem that the railway westward from Santa Cruz to Cochabamba will be the last link to be completed. Meanwhile, an agreement was concluded early in 1943 between Bolivia and Brazil, to build an all-weather highway between Santa Cruz and Cochabamba. The cost is estimated at 7,000,000 Bolivianos, compared with the expenditure of some 35,000,000 Bolivianos to finish the railway between these places. The completion of the highway is envisaged for the end of 1946.

The State has also built a 48-mile extension from Sucre to Tarabuco and is now building the further portion to Zudanez; this is to be prolonged eventually to a junction with the Yacuiba line at Lagunillas.

British enterprise, as in other South American countries, has been largely responsible for railway development in Bolivia, and British interests now operate

half the total mileage. About 44 per cent. of the railway mileage is now owned and worked by the State. The precise figures are as follow:—

|   | Route mileage | Percentage of total |
|---|---------------|---------------------|
| British-operated railways ...             | 804           | 50                  |
| Other privately-owned railways ...        | 103           | 6                   |
| <b>Total privately-owned railways ...</b> | <b>907</b>    | <b>56</b>           |
| State railways ...                        | 701           | 44                  |
| <b>Totals ...</b>                         | <b>1,608</b>  | <b>100</b>          |

All the railways are on the metre gauge, with the exception of Uyuni-Huanchaca, 24 miles, and Cochabamba-Vinto, 12 miles, which are on the 0.76 m. or 2 ft. 6 in. gauge. Of the British-worked railways, the Antofagasta (Chili) & Bolivia Railway Co. Ltd. owns and works the Bolivian section of its own system to Oruro, and also operates under lease the lines of the Bolivia Railway Company, which is a U.S.A. concern in which both the Bolivian Government and the Antofagasta Company are interested as shareholders and bondholders. The Peruvian Corporation owns and works the Guaqui-La Paz line, which gives the corporation control of the direct communication between La Paz and Mollendo on the Pacific coast. The Guaqui-La Paz Railway was sold to the Peruvian Corporation by the Government in 1910.

Very little electrification has been carried out on the Bolivian railways. The 0.76 m. line from Cochabamba to Vinto, 12 miles, belonging to the Cochabamba Light & Power Company, is electrified, but the only other electrification is on the Guaqui-La Paz Railway, where trains are stopped 5 miles from La Paz and hauled into the city by electric locomotives.

Subjoined is a complete list of the Bolivian railways according to the most recent information available:—

|   |   | Route-mileage open |
|---|---|--------------------|
| <b>British-operated railways—</b>             |   |                    |
| Oruro-Viacha ...                              | Owned by the Bolivia Railway Company. Operated                                      | 126                |
| Oruro-Cochabamba ...                          | by the Antofagasta (Chili) & Bolivia Railway Co. Ltd.                               | 127                |
| Rio Mulato-Potosi ...                         |   | 108                |
| Uyuni-Atocha ...                              |   | 56                 |
| <b>Oruro-Orlaque ...</b>                      | <b>Owned and operated by the Antofagasta (Chili) &amp; Bolivia Railway Co. Ltd.</b> | <b>302</b>         |
| Viacha-La Paz ...                             |   | 25                 |
| Guaqui-La Paz ...                             | Peruvian Corporation Limited  | 327                |
| <b>Total British-operated railways ...</b>    |   | <b>804</b>         |
| <b>Other privately-owned railways—</b>        |   |                    |
| Machacamarca-Uncia ...                        | Patiño Mines Company (U.S.A.)   | 67                 |
| Uyuni-Huanchaca ...                           | Compañía Huanchaca  | 24                 |
| Cochabamba-Vinto ...                          | Empresa de Luz y Fuerza Eléctrica de Cochabamba                                     | 12                 |
| <b>Total all privately-owned railways ...</b> |   | <b>907</b>         |
| <b>State railways—</b>                        |   |                    |
| Arica-La Paz (Bolivian Section) ...           |   | 145                |
| General Pando-Corocoro branch ...             |   | 5                  |
| La Paz-Yungas (the line to Unduavi) ...       |   | 34                 |
| Cochabamba-Vila Vila ...                      |   | 75                 |
| Cliza-Arani branch ...                        |   | 35                 |
| Potosi-Sucre ...                              |   | 109                |
| Sucre-Tarabuco ...                            |   | 48                 |
| Villazon-Atocha ...                           |   | 123                |
| Corumba-Santa Ana ...                         |   | 127                |
| <b>Total State railways ...</b>               |   | <b>701</b>         |
| <b>Total, all railways ...</b>                |   | <b>1,608</b>       |

**SANTIAGO TRANSPORT NATIONALISATION.**—The Chilean Government submitted a Bill to Congress some time ago, envisaging the nationalisation of the Santiago electricity, tram, and bus undertakings. Preliminary steps are reported to have been taken to acquire the shares of the Compañía Chilena de Electricidad, a company associated with the American & Foreign Power Company, but Government controlled for about a year. The idea behind the State control of Santiago urban traffic is said to be to enable the fares to be kept at a low level, which it is maintained that private concerns are unable to do. On the other

hand, new taxes are being envisaged to enable the Government to acquire rolling stock and new plant. Some 1,300 buses were seized at Santiago with a view to their being put into service again, but conflicting reports say that the buses seized in February were returned to their owners, and that the Government scheme to establish a State-owned transport corporation has apparently been abandoned. In the meantime, the tram and bus services of the capital are said to have deteriorated considerably as a result of the shortages of repair materials, motor fuel, and tyres.

## Colour-Light Distant Signals on the L.M.S.R.

*Semaphore distant signals are being replaced by colour-light signals with special attachments to permit the passage of out-of-gauge loads when necessary*

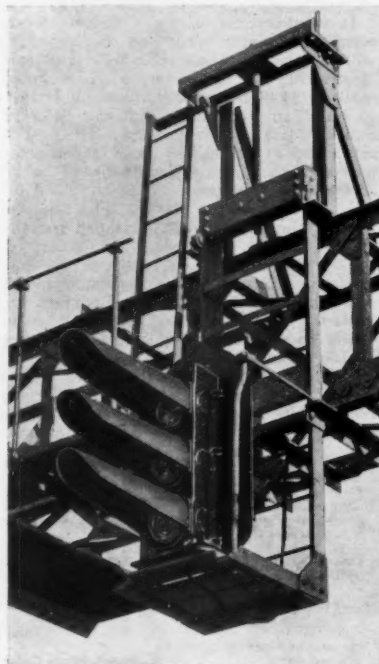
FOR many years on several of the main trunk lines out of London, particularly those leading to the north, a familiar sight was the succession of tall signal posts needed to conform to the practice of the last century, when a sky background to semaphore arms was thought essential, at least in the case of distant and home signals. In unfavourable local conditions, posts 60 ft. high—occasionally even more—were used, and considerable expense was incurred in providing the drivers with a long distance view of their signals in bold relief against the sky. Duplicate arms and lamps at a lower level were often provided to afford a clearer indication when the train had neared the signal post and to meet bad weather conditions, when the elevated arms were at a disadvantage.

The demand for a sky background arose in the days of hand brakes, when an adverse distant signal had to be acted on the moment it was sighted. For many years the rule on some railways was that a driver had to stop at such a signal, if he could, proceeding thereafter cautiously, prepared to stop at any point within it. Gradually, however, as hand brakes gave place to continuous brakes, the function of a distant signal changed until it became purely one of warning the driver of the conditions obtaining in advance of the relative home signal. On some railways which were quadrupled many years ago there was insufficient room to place the signals alongside the line to which they applied, and the tall double posts were placed outside the left-hand track, separating the signals from one of the roads by an appreciable distance; this added to the difficulties in foggy weather. The alternative was expensive brackets or gantries and increased working complication. In recent years the tendency has been to abolish the tall posts and keep the signal arms as low as possible, consistent with efficiency. This greatly improves the reading of the night aspects. Fog signalling, however, is still necessary, and if a signal is missed and no detonator is heard, the consequences may be serious. Anything that will improve the arrestive effect of a distant signal is, therefore, a valuable aid to safe working.

### Adoption of Colour-Light Signals

The success attending the working of multiple-aspect colour-light signals without fogmen showed that the replacement of semaphore distant signals by colour-light units would do much to facilitate the work of the drivers, eliminating at the same time the cumbersome mechanical connections to the signals and the need of fogmen. The delays frequently caused by working fog block before the fogmen arrive at their posts would also disappear. Some time ago the L.M.S.R. decided to install colour-light distant signals on its principal main routes, such as Euston to Carlisle, as and when the semaphore distant signals fell due for renewal. Many installations are now in service with most satisfactory results. The function of a distant signal, especially on a high-speed route, is of paramount importance, and every precaution is taken to ensure completely reliable working.

The signals are placed alongside the line, or mounted on gantries when necessary to bring them immediately to the left of the track to which they apply, in the best sighting position for the driver, who stands on the left of the footplate. They are sited at maximum service braking distance for fully fitted trains running at 70 m.p.h., with correspondingly increased sighting distances where speeds above this figure prevail. It



*Retractable-chassis mechanism for raising signal clear of out-of-gauge loads*

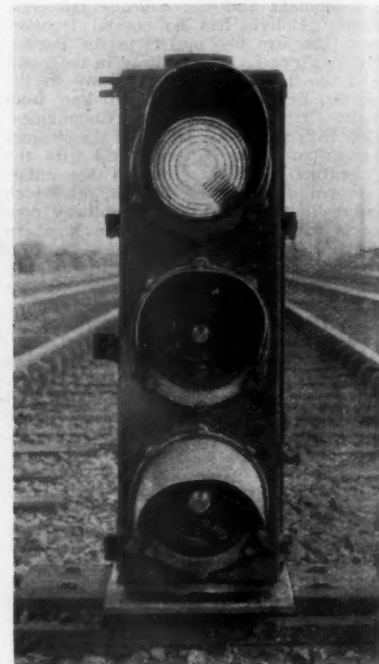
was considered of the utmost importance to ensure that in the event of a lamp filament failing a yellow aspect should always be displayed, and that, as fogmen were to be dispensed with, there should never be any diminution in the intensity of the beam. For this reason a separate auxiliary yellow unit is incorporated in each signal in preference to using a double-filament lamp in a single unit.

This also eliminates the risk of the common wire to a double filament lamp failing and cutting out the yellow aspect completely. The green aspect is placed between the two yellow ones; the normally burning yellow aspect is at the bottom (except as mentioned below), in direct line with the driver. The lamps are of the well-known SL.18.A type, 12 volts, 24 watts, with separate pair of wires to each, run at 11 to 11.5 volts, to ensure long life without too much sacrifice of light, from 6 lead-acid cells floated across a metal rectifier fed from a.c. supply mains. The accumu-

lators have sufficient capacity to provide a 24-hr. stand-by, and on the main supply being restored after interruption the rectifier has sufficient to provide a boosting charge. The lights of the main signal aspects are continuously repeated in the signal box, with audible warning of lamp failure. The back contact of the proving relay brings in the auxiliary yellow aspect automatically. The filament of the lamp in that aspect is continuously proved in the repeater circuit, to ensure that it is always immediately available. Failure of power supply is indicated by a bell, which rings until the signalman presses a plunger.

### Problem of Out-of-Gauge Loads

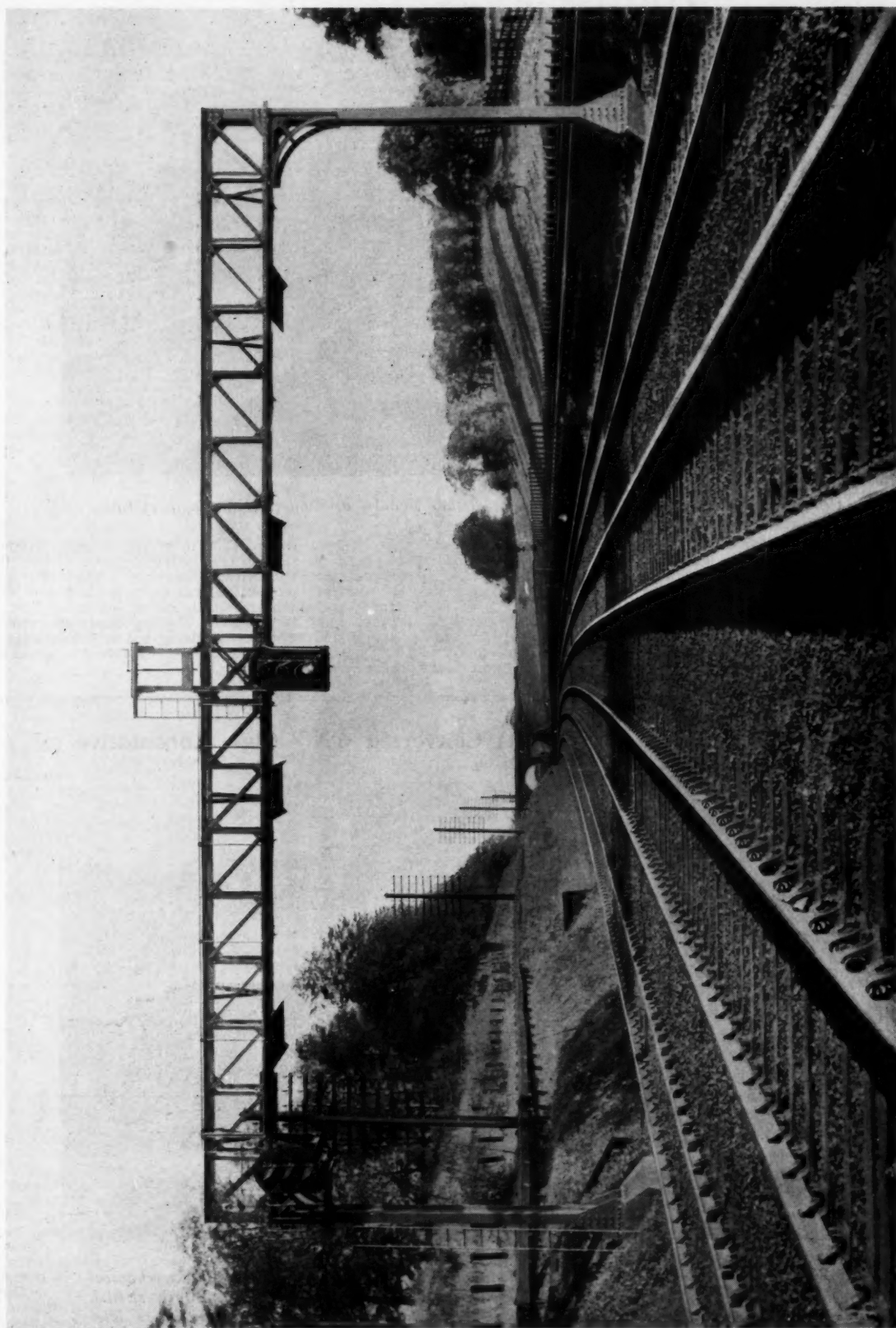
When mounting the signal units below gantries to bring the bottom main yellow aspects in the best sighting position, the



*Dwarf-type colour-light distant signal used on straight track where space is restricted. (Main yellow aspect at top)*

background plates approach practically to the gauge clearance line in the "V" between the respective gauge limits of adjacent roads, on routes where the space between parallel tracks does not allow of a post being erected. It is sometimes necessary to allow for the passage of out-of-gauge loads, and if the signals were permanently fixed to permit of this they would not be in the best position to give the sighting called for, and their value would be diminished, particularly in bad weather. This problem has been met on the L.M.S.R. by attaching the signal units to a chassis or framework of plates and angle irons, adapted to be raised and lowered by a threaded vertical spindle with the aid of a crank handle, like a sluice; instructions are sent out to the Signal Department staff when a specially wide load has to be arranged for. The construction of this interesting arrangement is shown in the accompanying illustrations.

The same principles of construction can



Colour-light distant signal gantry showing in centre signal fitted with retractable chassis. (Main yellow aspect at bottom)





*Ordinary post and dwarf type colour-light distant signals, used on straight length of line*

be used for complete multiple aspect signalling, and when this is done the caution (single yellow) aspect is always mounted nearest to the driver's line of vision, as it is considered that if the approach warning is made clear and unmistakable, then the driver, having seen that, may fairly be held responsible for looking with particular care for

the red aspect which may follow. Where there is not space between the tracks to fix a post and the railway is straight for a sufficient distance in rear of a distant signal location it is possible to dispense with the gantry and retractable chassis and replace the signal that would be mounted thereon by a dwarf signal between the

tracks. The main yellow aspect is then the top one. After a period of trial the Locomotive Running Department expressed itself as quite satisfied with this form of signal, and a number are now in service where sighting conditions permit. The cost of fixing one is naturally very much less than that involved in installing a gantry.

### North Western Railway (India) Converted "N" Class Locomotive



*N.W.R. 4-cylinder 2-10-0 "N" class locomotive No. 35, which has been fitted with a mechanical stoker. There are 30 engines in the class; they were built in 1919 by the North British Locomotive Co. Ltd. for service on the Chat sections of the G.I.P.R. and were later transferred to the N.W.R. Some details of the fitting of a mechanical stoker to the first of these locomotives were given in an illustrated article in our July 16 issue*

## RAILWAY NEWS SECTION

## PERSONAL

Sir James Milne, K.C.V.O., C.S.I., General Manager, Great Western Railway, has been elected Chairman of the General Managers' Conference for 1944, his sixth successive year in that position.

Mr. C. D. Gibb has been appointed Director-General of Fighting Vehicles Production, Ministry of Supply, in succession to Mr. A. J. Boyd, Managing Director of the Metropolitan-Cammell Carriage & Wagon Co. Ltd., who is returning to his firm. Mr. Gibb is a Director of C. A. Parsons & Co. Ltd.

We regret to record the death on November 28, as the result of an accident, of Mr. H. W. G. Drummond, Senior Engineer, Gold Coast Government Railway.

Dr. Octavio R. Amadeo, President of the Argentine National Transport Co-ordination Committee, has resigned. He was appointed last July to draw up a new national transport co-ordination law for submission to the Government.

The late Sir Guy Granet, a Director (formerly Chairman) of the London Midland & Scottish Railway Company, and a former General Manager of the Midland Railway, who died on October 11, left £54,360.

The Minister of Fuel & Power announced in the House of Commons on December 14 that he had invited Messrs. A. G. Vaughan Lee, S. B. Donkin, and W. T. Halcrow to form the technical body to review the conclusions of the Severn Barrage Committee in the light of later engineering experience and practice, and that they had commenced that work. Mr. Donkin is Chairman of the Association of Consulting Engineers, Past-President of the Institution of Civil Engineers, and senior partner of Messrs. Kennedy & Donkin, consulting engineers. Mr. Halcrow is a Past-Chairman of the Association of Consulting Engineers, and is a consulting engineer to the L.P.T.B. and various Government departments and other bodies.

MEMORIAL SERVICE FOR  
MR. D. M. MACRAE

A memorial service for Mr. Donald M. MacRae, General Manager, Central Argentine Railway, who died on September 19, was held in St. Andrew's Scots Presbyterian Church, Buenos Aires, on September 20. Among those who attended were Sir David Kelly, the British Ambassador, and members of the Embassy staff; Sir Eugen Millington-Drake, Latin-American Representative of the British Council; the Hon. W. F. A. Sturgeon, the Canadian Minister; Sir Robert Burton-Chadwick, Representative of the British Ministry of War Transport; Mr. A. H. Marlow, British Consul-General; Sir William McCallum, Chairman, British Chamber of Commerce; and the general managers, legal representatives, and chief officers of the British-owned railways. The pall-bearers included Señor A. Iturbe, Chairman, Local Committee, Central Argentine Railway Limited; Major O. Loewenthal, General Manager, Buenos Ayres Great Southern and Buenos Ayres Western Railways; Mr. M. F. Ryan, General Manager, Buenos Ayres & Pacific

Railway; Major R. K. Hubbard, Acting General Manager, Central Argentine Railway; and Mr. R. Flack, Chief Accountant, Central Argentine Railway.

Major R. K. Hubbard, O.B.E., A.M.I.Mech.E., M.I.Loco.E., M.I.A.E., Assistant General Manager, Central Argentine Railway, who, as recorded in our December 17 issue, has been appointed Acting General Manager, was born at Worthing, Sussex, in 1887. His transport career started in 1903 with his apprenticeship to the Thornycroft Steam Wagon Co. Ltd., afterwards merged into John I. Thornycroft & Co. Ltd., at Basingstoke, where he was trained in the

Mr. W. M. Perts, M.Inst.T., Commercial Superintendent, Southern Railway, who, as recorded in our last week's issue, is retiring on January 1, entered the service of the former London Chatham & Dover Railway in 1891. In 1911 he became Assistant to the Parcels Manager of the South Eastern & Chatham Railway, and he took charge of the department in 1921. Under the Southern Railway in 1923, Mr. Perts was appointed Deputy Assistant for Rates & Charges to the Indoor Commercial Manager. He was selected to give evidence for the railway companies before the Rates Advisory Committee in 1920, and the Railway Rates Tribunal in 1924, on ques-



Major R. K. Hubbard

Appointed Acting General Manager,  
Central Argentine Railway



Mr. W. M. Perts

Commercial Superintendent,  
Southern Railway, 1937-43

design and manufacture of steam and internal-combustion road vehicles, and gained experience with special designs of vehicles for the mechanical transport branch of the Army. Later he held the appointment of Assistant Works Superintendent of Halley's Industrial Motors, Glasgow. On the outbreak of war in 1914 he received a commission in the mechanical transport branch of the Army Service Corps, and served in France as Officer in Charge of Stores at the Mechanical Transport Depot, Rouen. He was mentioned in dispatches three times, and was made an Officer of the Order of the British Empire. After the war Major Hubbard assisted in the reorganisation of road transport in the Army, and held successively the appointments of Assistant Instructor, Mechanical Transport, Aldershot; Technical Staff Captain, War Office; and Acting Chief Inspector of Mechanical Transport, India; and later was a member of the Mechanisation Committee, Woolwich. He retired from the Army with the brevet rank of Major in 1930 to take up the position of Deputy Stores Superintendent, Central Argentine Railway; he became Stores Superintendent a year later, and was appointed Assistant to the General Manager in 1936. He was made Assistant General Manager in 1942. Major Hubbard is a Member of the American Society of Automotive Engineers.

tions relating to rates for passenger-train traffic. In 1930 he was appointed Rates & Fares Assistant to the Traffic Manager, and in 1934 became Deputy Commercial Assistant. Two years later he was made Commercial Assistant to the Traffic Manager, and in 1937 became Commercial Superintendent. Mr. Perts was Chairman of the Railway Executive Committee Goods Managers' Committee in 1938, and has been Chairman of the Passenger Committee of the same body since April, 1942. He was also a member of the Mineral Committee. He has been Chairman of the following Railway Clearing House Conferences: Goods Managers' Conference (1938), Mineral Managers' Conference (1939), and Coaching Traffic Superintendents' Conference (since 1941). He was a member of the Rail & Road Central Conference in 1939 and 1940. Mr. Perts is a Freeman of the City of London, and has served on the Council of the Institute of Transport, of which he is a foundation member. In June, 1942, he completed 50 years' service with the railway, and received a gold medal from the General Manager to commemorate the event.

Mr. R. G. G. Beesley, M.C., who has been appointed Assistant (Cartage) to the London District Goods Manager, Great Western Railway, joined the company in 1908. He went to the Road Transport

Department, Paddington, in 1933, and became Chief of the Operating Section in 1937. In February, 1942, he was appointed Cartage Controller, London District Goods Manager's Office, and the responsibilities attaching to this post are carried to the new appointment. Mr. Beesley was invalided from the Army in the war of 1914-19, after having been awarded the Military Cross.

Sir Harold Flannery has been appointed a Director of Callender's Trust Limited.

The directors of the Southern Railway Company announce that the Rt. Hon. H. U. Willink, M.C., K.C., M.P., has relinquished his seat on the board of the company subsequent to his appointment as Minister of Health, and that Mr. Henry Brooke, M.P., has been co-opted to fill the vacancy caused by Mr. Willink's resignation.

The late Lt.-Colonel Clarence I. A. Dubs, a Director of the North British Locomotive Co. Ltd., who died on August 18, left £168,985.

We regret to record the death on December 15, at Oxford, of Mr. Geoffrey Nevey Southerden, of Exeter. He was on the staff of the G.W.R. Mr. Southerden was keenly interested in various aspects of railway working, and was an enthusiastic and skilled photographer of railway subjects. His notes and photographs were greatly appreciated by our associated monthly publication, *The Railway Magazine*.

Sir Samuel Strang Steel, who is a Director of the London & North Eastern Railway Company, has been appointed a Director of the Scottish Power Co. Ltd.

Colonel R. P. W. Adeane and Mr. W. M. Codrington, M.C., have been appointed Directors of the Midland Railway Co. of Western Australia Ltd. Colonel Adeane is Managing Director of the Ottoman Railway Holding Co. Ltd.; and Mr. Codrington is Chairman of the Great Western of Brazil Railway Co. Ltd., the Central Africa Railway Co. Ltd., and the Nyasaland Railways Limited.

Commander Sir Charles Craven, Chairman & Managing Director of Vickers-Armstrongs Limited, and of the English Steel Corporation Limited, and Chairman of Gresham & Craven Limited, has been appointed Deputy-Chairman of Vickers Limited, as from January 1, in succession to Colonel J. B. Neilson, D.S.O., who, as recorded in our November 19 issue, is resigning that position, but remains a Director of the company.

Mr. H. Taylor, Passenger Agent, Liverpool, Canadian Pacific Railway, who, as recorded in our December 17 issue, retires on December 31, has been well known for many years to regular travellers and cruise passengers by Canadian Pacific steamships. He joined the Allan Line at Liverpool, his native city, as a passenger clerk, and when that line became merged with Canadian Pacific Steamships Limited in 1915 he had already 25 years' experience in passenger service; in 1920 he was holding the position of General Agent for the C.P.R. in Liverpool. In 1924 he went to Southampton as Passenger Agent, where he remained until 1938, when he returned to Liverpool in a similar capacity.



**The late Mr. F. J. Hills**

London Manager, Metropolitan-Cammell Carriage & Wagon Co. Ltd., 1934-43

We regret to record the death on December 19, at the age of 66, of Mr. F. J. Hills, M.I.Loco.E., London Manager, Metropolitan-Cammell Carriage & Wagon Co. Ltd. Mr. Hills was educated at the Roan School, Greenwich. He entered the service of the Bristol Wagon & Carriage Works Co. Ltd. in 1895, and held the appointment of London Manager for that firm from 1913 to 1920. In the latter year he joined the London staff of the Leeds Forge Co. Ltd., with which the Bristol concern then was amalgamated. Three years later, after the merging of the Leeds Forge Co. Ltd. with Cammell Laird & Co. Ltd., Mr. Hills continued in his appointment on the London staff. When the rolling-stock interests of Cammell Laird & Co. Ltd. were linked with those of Vickers Limited, Mr. Hills continued service with, and at the end of 1933 was appointed London Manager of, the Metropolitan-Cammell Carriage, Wagon & Finance Co. Ltd., to acquire the undertaking of which the Metropolitan-Cammell Carriage & Wagon Co. Ltd. was formed in 1934.

Mr. J. S. Wills has been appointed Chairman, and Mr. R. W. Birch a Director, of the South Wales Transport Co. Ltd., and of the Swansea Improvements & Tramways Company. Both companies are controlled by the British Electric Traction Co. Ltd.

Mr. D. M. Sinclair, M.I.A.E., M.Inst.T., Chief Engineer of the Birmingham & Midland Motor Omnibus Co. Ltd., has been appointed Acting General Manager of that company.

Mr. J. W. S. Brancker has been appointed to succeed Mr. D. H. Handover as Traffic Director of the British Overseas Airways Corporation.

Mr. B. L. Curran, Accountant, County Donegal Railways Joint Committee, is acting as Manager & Secretary, and has not been appointed, as stated in our December 10 issue, to substantive rank.

Dr. H. Bühler, First Chief of Section in the Maintenance of Way & Power Stations Division, Swiss Federal Railways, has been appointed to succeed Dr. H. Eggenberger, who is retiring, as Chief of that division.

Dr. H. Zitt, Traffic Inspector, St. Gall, Swiss Federal Railways, has been appointed Traffic Manager of the Rhaetian Railway in succession to Mr. E. Lang, who is retiring on December 31 after 40 years' service with that company.

#### INDIAN RAILWAY STAFF CHANGES

Mr. V. Nilakantan, Deputy Director, Railway Board, has been appointed to officiate as Director, Railway Board, during the absence on leave of Khan Bahadur M. D. Sheikh.

Mr. S. C. Das has been appointed to officiate as Deputy Chief Commercial Manager, B.A.R.

Mr. C. M. Renrick has been appointed to officiate as Deputy General Traffic Manager, B.C.I.R.

Khan Bahadur K. M. Hassan has been confirmed provisionally as Deputy General Manager (Personnel), E.I.R.

Rao Bahadur M. A. Asrani has been appointed to officiate as Deputy General Manager (Planning), E.I.R.

Mr. J. W. C. Holt has been appointed to officiate as Deputy Chief Operating Superintendent, E.I.R.

Mr. M. L. Mitter has been appointed to officiate as Deputy Chief Mechanical Engineer, E.I.R.

Rai Sahib J. N. Das has been appointed to officiate as Divisional Superintendent, E.I.R.

Mr. B. B. Varma has been appointed to officiate as Divisional Superintendent, E.I.R.

Mr. C. G. Graham has been appointed to officiate as Chief Engineer, G.I.P.R.

Mr. P. Wood, E.D., Financial Adviser & Chief Accounts Officer, G.I.P.R., has been appointed to officiate as General Manager during the absence on leave of Mr. G. E. Cuffe.

Mr. C. E. Hall has been appointed to officiate as Financial Adviser & Chief Accounts Officer, G.I.P.R., in place of Mr. Wood.

Mr. W. T. Griffiths, Deputy General Manager, G.I.P.R., has been granted two years' leave preparatory to retirement, as from August 12.

Mr. J. I. Pearce has been appointed to officiate as Deputy General Manager (War Planning), G.I.P.R.

Mr. K. C. Bakhle has been appointed to officiate as Deputy Chief Engineer (Maintenance), G.I.P.R.

Mr. G. C. Assheton Smith has been appointed to officiate as Deputy General Manager (Recruiting), N.W.R.

Khan Bahadur Z. A. Khan has been appointed to officiate as Deputy Chief Operating Superintendent, N.W.R.

Mr. E. M. Egan has been appointed to officiate as Deputy Chief Commercial Manager, N.W.R.

Mr. T. S. Subramania Iyer has been appointed to officiate as Deputy Chief Accounts Officer, N.W.R.

Mr. S. B. Deshpande has been appointed to officiate as Divisional Superintendent, N.W.R.

Mr. A. Mair has been confirmed as Financial Adviser & Chief Accounts Officer, O.T.R.

Mr. R. W. Allum has been confirmed in the appointment of Deputy General Manager, O.T.R.



## TRANSPORT SERVICES AND THE WAR—221

### Civilian Air Raid Casualties in November

The Ministry of Home Security has announced the following figures of civilian casualties due to air raids in the United Kingdom during the month of November:—

Killed (or missing believed killed) ... 119  
Injured and detained in hospital ... 238

The casualties are classified as follow:—

|   | Men | Women | Under 16 | Unclassified |
|---|-----|-------|----------|--------------|
| Killed (or missing believed killed) ... | 41  | 49    | 28       | 1            |
| Injured and detained in hospital ...    | 76  | 134   | 28       | —            |

### More Fuel for Buses

The allocation of petrol for buses is being increased by 5 per cent. to improve services for workers and other essential travellers. Sunday morning services may be restored in a number of cases. The increase affects Scotland and the provinces, and excludes London Transport.

### Christmas Road Travel

Road passenger transport operators in the North Midland Region have agreed that there shall be no Christmas Day passenger transport throughout the area.

Christmas tram and bus services in the North-West Region will be as last year, namely, normal Sunday services on Christmas Day and Sunday, and normal services on Monday except where workmen's services are not needed.

London Transport is operating restricted road services on Christmas Day until 4 p.m., and then a few skeleton routes; and Sunday services on December 27, without the pre-1 p.m. curtailments.

### Ulster Christmas Traffic

In consequence of Government restrictions in Northern Ireland, the Great Northern Railway (Ireland) gave notice that it would be unable to operate additional services during the Christmas Holiday period. Travel tickets have been obtainable in advance at stations from December 1, and passengers travelling by main-line trains joining at Dublin, Belfast, and Londonderry were advised to make timely application at these stations for reservation tickets, issued at a charge of 1s. each. During the Christmas Holiday period passengers travelling from Belfast to Dublin can also obtain on application at Great Victoria Street Station, Belfast, reservation tickets for the return journey from Dublin. Only limited van accommodation is available for luggage, bicycles, etc. In order to avoid delay, inconvenience, and discomfort in travelling, long-distance passengers were enjoined, when possible, to travel before December 24.

### Tyre Economy on the L.N.E.R.

The British railways employ some 15,000 men and women who, in connection with their cartage services, are directly or indirectly concerned in the care and operation of some 80,000 wheels running on rubber tyres. These wheels run in the aggregate 66,000,000 miles a year. The steps taken to ensure that the most economical use is made of every tyre vary according to different needs, and embrace the issuing of circulars giving guidance and instruction on how to get the best out of tyres, the holding of lectures, constant supervision by inspectors, and a host of minor arrangements.

The L.N.E.R. has recently added to its drive for tyre economy by appointing a special demonstrator to tour the Southern Area of the system and give demonstrations to drivers, showing them the results of ill-treating tyres, explaining how tyres are constructed, and describing the many

things that a driver can do to lengthen the life of the tyres on his vehicle. The demonstrator, Mr. F. F. Hall, is provided with a 30-cwt. van equipped with literature and posters; a variety of sections of tyres to illustrate how they are constructed; specimens of tyres that have been damaged by abuse or neglect; and sections showing how a tyre can be retreaded if treated before it has gone too far. Stations from which drivers cannot easily get to a centre will be visited by the van specially.

### London Inter-station Buses

A new bus route connecting five principal London main-line stations began on Monday last, December 20. It is for the convenience of railway passengers arriving at a main-line terminus and unable to obtain a taxi to take them to another main-line station. The facility, which has been arranged at the request of the Ministry of War Transport, is being provided daily from about 6.30 p.m. until midnight. Buses leave at 30-min. intervals and run non-stop in both directions between the following stations: Paddington, Victoria, Waterloo, Euston, and Kings Cross. The fare for any stage of the journey is 1s. Luggage is accepted. The buses are labelled "Inter-Station Bus" and carry destination notices.

### Transport of Pit Timber

Before the war, British collieries consumed about 800,000 tons of pit timber annually, but, as most of this was imported and involved relatively short rail hauls from the ports to the coalfields, its transport was quite a simple matter. With the closure of the Baltic ports to British shipping and the pressure on cargo space in Transatlantic convoys, our collieries have had to depend on home-grown timber. This in itself has been sufficient to throw a serious additional burden on the railways, as the chief reserves of standing pitwood are situated in Norfolk and the North of Scotland, thus necessitating much longer inland hauls to the coalfields, but the burden has been intensified through the home-grown wood having to be despatched in an unseasoned condition. Not only is unseasoned wood more than 100 per cent. heavier than fully-seasoned timber but, also, what is more serious from the transport viewpoint, it is about 10 per cent. more bulky. This is due to the fact that bark on normal sizes of pitwood occupies about 10 per cent. of the diameter, and, as neither labour nor habitation was available in the forests, the wood had to be despatched without removing the bark. Generally, the collieries prefer to have their propwood supplied in a decorticated condition and in some cases this is essential as the timber will not season properly—and hence strengthen to the required degree for roof support—unless the bark is removed. A conflict of interests thus arose between the collieries on the one hand and the forestry and transport authorities on the other. This was eventually settled by a typically British compromise in which wood for certain purposes was barked in the forests, whereas in other cases it was accepted by the collieries in a green state with the bark left on.

It is interesting to find that the same problem has arisen in Germany where, in contrast with official policy in this country, very frank figures have been published. The extra load involved in transporting the timber with the bark left on has been estimated to keep 20,000 railway wagons in use throughout the year, and this represents the case for the railway authorities in demanding the removal of all

bark before the wood is loaded. On the other hand, to strip the bark in the forests would require a labour force of 50,000 men working for 10 hours a day during the six months of the year in which forestry work can be carried out. The mines, of course, prefer seasoned timber as it is stronger and involves less labour in handling and setting. No doubt a similar compromise to that effected in this country would have been arrived at had it not been for the ravages of the bark beetle, the breeding of which is greatly facilitated by leaving felled unbarked timber in the forests. The bark beetle attacks leading shoots in the growing trees, and, as the forestry industry is of major importance to Germany, the argument for removal of the bark, which is burnt in the forests with the brushwood, is much more compelling than in this country. In Germany, therefore, a rough stripping has been decided upon, this having been found to be sufficient to enable the timber to season to some extent, to reduce the ravages of the bark beetle, to enable some reduction to be made in the labour force required for stripping, and to relieve the transport position.

### German Christmas Travel Ban

On December 9 the following announcement was broadcast from Berlin: "The demands made on transport by the war are so great that any additional strain on the railways during Christmas must be avoided. From December 15 to January 3 a comprehensive ban on travel will be imposed. Only those who have long been away from their families may travel, after examination by a special tribunal, and if they have permits from their factories."

### Town Gas in Continental Buses

We have made various references in these columns to the pre-war use of town gas in Berlin buses, and to the extension of the practice since the outbreak of war. It now appears that the Berliner Verkehrs Betriebe placed an order at the end of 1942 with Julius Pintsch A.G. to convert 200 buses from liquid fuel to town gas. Other towns mentioned as having fleets of buses working on town gas are Kiel, Hamburg, and Wiesbaden. It is stated that 500 buses are now being operated with town gas in Paris.

### French Railway Sabotage

A statement issued recently in Geneva listed acts of sabotage reported to have been effected by French partisans between August 24 and September 9. This mentions 29 railway stations blown up; 36 trains fired at with machine guns; 54 bombing incidents; 65 acts of general sabotage; and 47 instances of damage to telegraph and telephone facilities. Some reference to these attacks was made under the heading "Sabotage in Savoy" in our issue of October 29 (page 442). Reports from Stockholm state that the German occupation authorities have placed the town of Annecy (south of Geneva) under martial law, and that guards are patrolling the streets.

### German Locomotive Losses

Although frequent communications are issued by the various Allied Air Forces about their successes in destroying locomotives and rolling stock in Germany and occupied countries, it is not easy to form from these an accurate numerical impression. Officially compiled summaries, however, now reveal that bombing of Germany and occupied territories from bases in Great Britain has resulted in the destruction of approaching 200 locomotives a month. The Russian official summary of gains between July and November mentions the capture of more than 400, and the destruction of more than 300, locomotives. It appears,

therefore, that the German transport facilities are losing locomotives through air attack at the rate of more than 300 a month. This is irrespective of Polish activity, of which no estimate can be given.

The total number of locomotives put out of action during November by British Fighter Command attacks was approximately 150. In attacks by Bomber Command on 12 industrial centres, nearly 200 locomotives were destroyed, and nearly as many damaged; in addition, some 7,000 goods wagons were reported as destroyed, and more than 9,000 damaged, and nearly 2,000 passenger carriages destroyed or damaged. Many locomotives were destroyed in the attack on the Henschel Locomotive Works at Kassel.

#### Record Feat in American Oil Movement

During 1943 a remarkable feat was achieved by the New York Central System in connection with the large-scale movement of oil. In the previous year the U.S.A. Petroleum Co-ordinator, Mr. Harold Ickes, received authority to purchase 534 miles of 24-in. steel pipe, as the first instalment of an oil pipeline from Longview, Texas, to the East Coast. When laid, this pipe reached as far as Norris City, Illinois, a small town of 1,500 inhabitants, situated on a single line branch of the N.Y.C. (Big Four route) which extends south for 260 miles from Danville to Cairo, Illinois; Norris City is 170 miles south of Danville. Between February 19 and September 1, 1943, at a station normally staffed by a single employee, no fewer than 124,193 bogie tank wagons loaded with oil were moved by the New York Central and its connections from Norris City to the eastern seaboard. The

theoretical capacity of the pipeline is 300,000 barrels of oil a day, but the maximum actually reached was 275,000 barrels, the oil travelling at 5 m.p.h., and there were certain interruptions in the flow caused by a break in the line, and the washing out of part of the railway through flooding.

The pipeline company laid its own temporary facilities at Norris City, including 15 storage tanks, each with a capacity of 80,000 barrels, two yards with six tracks each holding 300 bogie tank wagons, and three loading platforms, each designed for the simultaneous filling of 46 wagons on each side. Although the third platform was not at first used, as it was kept in reserve for the completion of a second (20-in.) pipeline for petrol and petroleum products, a filling speed of 50 tank wagons an hour was attained at Norris City in normal working. In mid-July the main pipeline was completed from Norris City to the east coast, but, as the booster pumping stations on the extension were not complete, the New York Central still handled a considerable proportion of the oil for some months afterwards, by which time the 20-in. pipeline was completed as far as Norris City.

On completion of the sidings and loading racks, the operation was turned over to the railway, which increased its previous staff of a single agent to a total of 21 employees at Norris City. The temporary nature of the business did not justify the installation of extensive locomotive facilities at Norris City, and the locomotive depot at Mount Carmel, 45 miles north, was therefore adopted as the basis of operations. The 13 freight crews previously working between Danville and Cairo were increased to 40 crews. Mount Carmel normally handles 1,300 to 1,400 wagons a day, in and out, but

this number was increased to an average of 4,750, and a maximum of 5,500 was dealt with in one day. All wagon examinations and repairs were effected at Mount Carmel, where the peacetime repair staff of 2 was increased to 42, of whom 30 concentrated on repairs. The empty tank-wagons averaged 5 per cent. in bad order, and the full wagons 4 per cent.; wheel defects were the most common. The clerical and yard staff at Mount Carmel was increased in proportion.

Oil trains between Mount Carmel and Norris City were made up in loads of 80 empties southbound and 75 full tank wagons northbound; an extra northbound full train was run after the arrival of 15 empty trains. Twelve routes were arranged for block oil trains to the east coast, with a turn-around time varying from 6½ to 10 days according to distance. In all, 62 road locomotives, with 6 shunters at Mount Carmel and two diesel shunters at Norris City, were needed to maintain the oil service, with the normal coal and freight service, between Danville, Mount Carmel, Norris City, and Cairo.

#### New York Central Gives a Second Bomber.

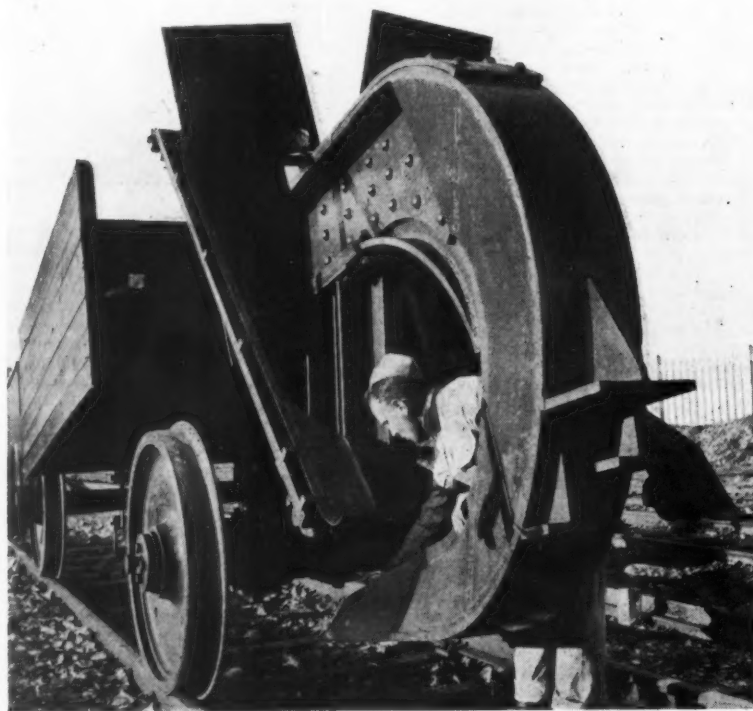
A year ago employees of the New York Central System presented a Marauder bomber to the American Army Air Force. It was named *New York Central I*, and in 13 combats over North Africa and Sardinia shot down six enemy planes before its landing gear was shot away, and it was withdrawn from operational flights. Employees of the company have now collected sufficient money to buy a second bomber, and this twin-engined Martin B-26 Marauder, named *New York Central II*, was formally handed over at the La Guardia airfield on September 12. It is the first replacement of a gift bomber ever yet accepted by the U.S.A. War Department.

#### Baltimore & Ohio Fire-Fighting Cars

Recently the Baltimore & Ohio Railroad of the United States, which handles a great deal of oil and other combustible war materials over its lines, has converted 12 standard bogie box wagons into fire-fighting cars for use in case of emergency. Each car is equipped with pumps, a generator, and hose sufficient to reach 400 ft. from the car. Tanks of foam, sufficient to produce about 33,000 gal. of liquid, are stored in each car, and are sufficient for one hour's continuous operation. The foamite is mixed with water from the tender of the locomotive hauling the fire-fighting train, and the locomotive steam is also used to operate the generator and the pumping system. These cars are stationed at twelve depots in Philadelphia, Maryland, Indiana, and Ohio, which also house breakdown trains.

#### Nigerian Coal Production

Plans are now being made to increase production in the Nigerian coal mines by nearly 40 per cent. All preparatory action to achieve the increase has been taken, and the mines at Udi are now awaiting the arrival of two engineers from England. It is hoped that the increase will be achieved within three months of the opening of the new production drive. Nigerian coal is of vital importance to the war effort as it saves the import of coal into West Africa from the Union of South Africa and the United Kingdom. It is used on the railways of Nigeria, the Gold Coast, and Sierra Leone, which carry the output of manganese, bauxite, timber, cocoa, and groundnuts—all important raw materials of war. The exportable surplus of Nigerian coal will be available for the French West African territories, which are also producing raw materials for the Allied war effort.



German track-wrecking machine being used by the retreating German forces in Italy. It is stated to weigh about 10 tons. The large hook at the rear, which forms the main portion of the apparatus, is hauled along the line and rips up the sleepers. At the same time, 2-lb. charges are dropped down runways on each side, and are detonated to explode some seconds after the wrecking train has passed. The Germans left one of these machines in the Termoli goods yard when they were surprised in the Commando attack on that town.



## Technical Journalism

Under the chairmanship of Lt.-Colonel J. N. Peck, District Engineer (London), L.M.S.R., Mr. Charles E. Lee, Associate Editor, *The Railway Gazette*, recently gave a talk on "Technical Journalism" to the London Section of the Permanent Way Institution. He said that, whenever engineers foregathered for professional purposes, the main purpose was educational. Technical journalism provided one of the important means of technical education, and it was useful to consider all the principal means, so that the subject might be viewed in true perspective. Broadly, there were three main ways in which knowledge was secured, namely, (1) by personal experience; (2) by information imparted by spoken word; and (3) by information imparted by the printed word. Merely securing or imparting information did not constitute education, for the word "educate" in its origin meant to draw out, or to develop the faculties of, the mind, and thus was different from "instruction," which meant furnishing the mind with facts. Technical education comprised the selection of such information as might be of value in inspiring thought or directing attention to useful channels of inquiry, and this selection and method of presentation was one of the most important features of technical journalism.

For a very long period of history, technical knowledge was regarded as secret, and those who possessed it were bound together by craft guilds. Membership was obtainable only by means of apprenticeship to a craftsman, who would introduce his pupil after having satisfied himself over a period of years that he had not only learned the rudiments of his craft but was a discreet person who might be initiated into the higher mysteries of the profession.

The oldest craft, and the first to be organised, was that of building or masonry, comprising all which we now called civil engineering, and we had a survival of this early organisation to preserve the secrets of a profession in the form of modern freemasonry. Although today it was only a speculative organisation, the members of which were associated for social, charitable, and moral purposes, freemasonry preserved in its secret methods of recognition, and its ritual of initiation (available only to a free man of mature age) as an Entered Apprentice, and progress of ceremonial raising by Regular Steps to higher Degrees, the general structure of the means whereby, for many centuries, technicians and engineers were educated. The Second Degree was the Fellow Craft's Degree; the Third Degree that of Master Mason. The respective ceremonies included oaths that the initiate would "always heke, conceal, and never wilfully reveal, any or either of the secrets or mysteries," either to outsiders or to those of Lower Degree.

Freemasonry was said to have been a development of the association in the building of King Solomon's Temple of Jewish labourers with members of the Greek society of builders known as the Fraternity of Dionysian Architects (formed about 1000 B.C.) who were sent to help in the work by Hiram, King of Tyre. One of the secrets known to the Dionysian Architects was that of the construction of the arch. Without examining in detail the evidence of the antiquity of the arch, it might be said that arches with regular keystones had been discovered in the doorways of tombs at

Thebes, which were constructed in 1540 B.C. The fact that this was not generally known until recent years was the result of the hesitance of the early engineers to record their achievements in a form which was open to all and sundry.

Publishing was practised many centuries before the discovery of printing, and the Roman method was to have a staff of scribes each making one copy of a book read out at "dictation speed" by a reader before whom the scribes sat. There had been text-books of sorts in early years, of which an example was to be found in "Spiritualium Liber," by Hero of Alexandria. He flourished probably about A.D. 100, and was possibly more of a journalist than an inventor.

Newspapers or journals were also of considerable antiquity; there was the *Acta Diurna* in ancient Rome, and the *Peking Bao*, founded in A.D. 400 by Su Kung, was published for 1,534 years.

What was probably the first trade newspaper was *A Collection for Improvement of Husbandry and Trade*, begun in 1692. It contained stock prices, market prices of commodities, and "wanted" advertisements. In the same year the famous London Lead Company was incorporated by Charter of William & Mary, which required every Member to take an oath of secrecy concerning the mining methods of the company.

Printing of both words and illustrations was known more than 1,000 years ago; a whole page was engraved on a wood block. Printing from movable type had been practised since 1440. All the physical appliances of technical journalism were therefore available many centuries before technical descriptions of engineering works were published, for the reason (already mentioned) that the methods of achievement were regarded as professional secrets.

Probably the first example of what might be termed a technical journal was "A Course in Experimental Philosophy," conducted by Dr. John Theophilus Desaguliers, of which the first volume was published in London in 1734. This contained the first detailed description of a railway (the Prior Park Wagon-way, Bath) and its rolling stock; it was contributed by a practical engineer, Charles de Labeyle, who was afterwards Engineer of Westminster Bridge, in 1751. The rolling stock drawings were scaled, keyed with letter references, and showed considerable detail.

Shortly afterwards, various monthly magazines were begun, some of which published semi-popular engineering articles, but often written by experts. These magazines included: *The Gentleman's Magazine or Monthly Intelligencer* (begun 1731); *The London Magazine or Gentleman's Monthly Intelligencer* (1732); and *The Universal Magazine of Knowledge & Pleasure* (1747). By the second half of the 18th century railways were beginning to appear in the descriptions of engineering achievements, but track, bridges, and coal wagons were all that could then be described, in the absence of mechanical traction.

What today we called civil, as opposed to mechanical, engineering had already begun its struggle for the status of the profession. A society of civil engineers had been established in March, 1771, and included such famous men as Smeaton, Jessop, Priestley, Boulton, Rennie, and Watt. Many other members, however, were described as "either amateurs, or ingenious workmen and artificers, connected with, and employed in, works of

engineering." About 1791 the membership totalled some 65, of which only about 15 were "real engineers employed in public works, or private undertakings of great magnitude" (according to an account written in 1814). The principal members secured the dissolution of the society in May, 1792, so as to clear the way for the formation in 1793 of "The Society of Civil Engineers," consisting exclusively of those having specified professional qualifications. Here again, we had an example of the unwillingness to permit technical information to be disseminated more widely.

For all practical purposes, the British technical press as it existed today, was a direct descendant of a publication entitled *The Mechanics' Magazine*, founded in 1823, as a result of the activities of Dr. George Birkbeck, pioneer of the mechanics' institutions. The contents were not exclusively technical, but they did contain a considerable amount of material of interest to engineers. The spread of steam-operated railways led to the development of a special technical press, of which the earliest example was begun in May, 1835, and from which *The Railway Gazette* traced direct descent. In its early years it was an admirable journal, conducted by the well known John Herapath, but it deteriorated with the first railway financial boom, and for a very long period of years became mainly a commercial and financial journal; in fact, the sub-title "Annals of Science" which it bore from 1836 was quietly dropped in August, 1839, in favour of the words "Commercial Journal."

*The Builder*, of which No. 1 was published on the last day of 1842, for a time covered a wide range of engineering matters, mainly in the years until, on January 4, 1856, *The Engineer* was launched. Its famous rival, *Engineering*, was begun exactly ten years later. Not until February, 1880, however, was there a specialised railway engineering journal, when *The Railway Engineer* began its long and noteworthy career, under the conduct of Mr. S. Richardson Blundstone. It passed into the control of *The Railway Gazette* in 1919, but continued as a separate publication until January, 1935.

Today, the British engineering press had attained world-wide eminence in the practical sphere. The widely-claimed excellence of the German press was true rather in the scientific and mathematical spheres, and tended to be too selective, and too "Continental" in its outlook. The American press had many admirable features, but, as a matter of policy, devoted its attention mainly to the New World. It was a source of gratification to those who were associated with the British engineering press that the editorial outlook was world-wide.

British technical journals today had staffs of contributors and consultants who were able to discuss their subject matter from an expert technical viewpoint, so that editorial staffs, both by their own training, and through the instrumentality of the many consultants at their disposal were able to deal with the subjects on terms of equality with their readers. In normal times, the trade and technical press of the world was combed for information, and regular correspondents (often in receipt of either full or part-time salaries) were maintained in all the important strategic centres. Something which was apt to be overlooked by the reader was the high value of the expert selection of the modern technical journal. Mere volume of descriptive information containing no new principle or practice

was of very small value to the engineer. Equally, the practising engineer had neither the time nor the facilities to read everything in order to find out for himself what was worthy of closer scrutiny. This was done for him, and usually with considerable skill, as part of the routine of British technical journals, and the results were presented to him, either weekly or monthly, in a profusely illustrated journal, in his own language, which was seldom priced at more than 1s. a copy.

It was worthy of mention that the actual costs of production were substantially in excess of the sale price, and it was only by means of the co-operation of

the manufacturers, who paid for their advertising space, that the whole business was possible. Moreover, with the passage of years, the announcements and information contained in these advertisements of leading manufacturers were by no means the least interesting and informative sections of the technical press. The view was held in some quarters that advertisers were able to exercise influence over editorial policy, but the experience of the speaker, both in connection with the group of 12 journals which he served, and also in connection with the British technical press generally, was that there was no justification for such an impression. Such journals as were prepared to

accept "write-ups," irrespective of technical scrutiny soon became known, and did not enjoy that confidence of engineer and manufacturer alike which was the cherished heritage of the British technical press.

Mr. Lee then described the processes of type setting, illustration-block manufacture, and printing, and outlined the developments in this sphere since the introduction of modern methods, contrasting them with the practice of 50 years ago. He said that some knowledge of the tools with which the technical journalist worked, and the limitations of his media, were necessary to a proper appreciation of his achievement.

## Repatriation of Argentine Foreign Debt

One of the most important and far-reaching operations in connection with Anglo-Argentine financial relations, involving the sum of 500,000,000 pesos (£30,000,000 at 15 pesos to the £), was announced by the Argentine Minister of Finance, Señor Jorge Santamarina, last September. This will consist in using part of the blocked sterling balances held in London by the Central Bank of Argentina, amounting to some £42,000,000, to liquidate the greater part of the foreign debt of the republic. The plan, as briefly recorded in our October 1 issue, calls for the repatriation, among others, of State Railways obligations under Laws 12,572 and 12,573, namely, the £661,100/4 per cent. bonds held by Argentine Transandine Holdings Limited, and the £8,472,900 similar bonds held by Cordoba Central Trust Limited. The bonds were issued in 1939 in consideration of the acquisition of the Argentine Transandine and Cordoba Central Railways, respectively.

In announcing the measure, Señor Santamarina stated that, in normal times, the services on the debts of Argentina in Great Britain were covered by her exports to that country. Consequently, it might be thought that the repatriation scheme would affect adversely that all-important market. The Minister pointed out, however, that it was not the regular payment of interest on her foreign obligations which could maintain and increase the export trade of Argentina, but her capacity to take imports in payment of her exports. That would be shown in a concrete form immediately after the war. In preparation, the Minister stated, it was essential to draw up an ample programme of imports covering all those articles and commodities which Argentina did not produce but which were needed for her economic expansion. It would be necessary therefore to purchase in Great Britain large quantities of machinery, transport materials, and equipment for the heavy industries. An import programme on the lines indicated offered the best method of stimulating exports.

In respect of the sterling balances available in London, the Minister of Finance stated that it was estimated that the balance in favour of Argentina would amount at the end of the current year to approximately £55,000,000, all of which had been received in payment of exports.

Señor Santamarina concluded by stating that Argentina's total debt on the London market stood at £39,000,000, and that, with the repatriation under the present plan of £25,000,000, it would be reduced to about one-third, namely, £14,000,000. That would represent a

satisfactory credit balance in London which, together with the funds held in other countries, would be more than ample to cover any immediate requirements in the post-war period.

(See editorial note, page 629)

## A Tribute to British Railway Posters

In our May 22, 1942, issue, some comment in the March issue of *Nation's Business*, the official magazine of the Chamber of Commerce of the United States, on the excellence of British railway poster advertising was reproduced. The article in *Nation's Business* was written by Colonel Robert S. Henry, Assistant to the President of the Association of American Railroads, and we remarked at the time that many of the American railway advertisements which were then appearing had a similar "maintenance advertising" atmosphere to that of the British railway product.

A further very striking instance of the manner in which the appeal of British railway posters has impressed itself overseas has now reached this country in the form of two posters which have been displayed by Australian railways. In this case the "sincerest form of flattery"

would appear to have been adopted, for the posters, which have been issued by the South Australian Government Railways, not only adopt the design of the British posters, but are very similar in their wording. Below we give reproductions of the British railway posters and also those issued by the South Australian Government Railways.



The posters issued by the British Railways



The posters issued by the South Australian Government Railways





## Staff and Labour Matters

### Civil Service War Bonus

The war bonus for non-industrial Civil Servants was increased to 19s. a week for men and 15s. 6d. a week for women with increases for juniors as from November 1. The increases are the result of agreements of the National Whitley Council and a feature of the agreements is that instead of there being a lower rate of bonus for adult Civil Servants with salaries over £250 a year, they will all now receive the same amount of bonus. The agreements apply to staff with salaries up to £850 a year and the revised amounts are as follow:—

| Age         | Amount of bonus a week |        |
|-------------|------------------------|--------|
|             | Male                   | Female |
|             | s. d.                  | s. d.  |
| Under 16    | 5 0                    | 5 0    |
| 16          | 6 6                    | 6 6    |
| 17          | 7 6                    | 7 6    |
| 18          | 10 0                   | 10 0   |
| 19          | 11 0                   | 11 0   |
| 20          | 13 0                   | 12 0   |
| 21 and over | 19 0                   | 15 6   |

### Engineering Wages

The engineering joint trades movement representing about 40 trade unions catering for engineering workers has decided to make a claim for an increase of 10s. a week in the basic rates of workpeople in the engineering industry.

The National Arbitration Tribunal heard the following claim by the engineering joint trades movement on December 1:—

(1) That piece-workers' overtime and night-shift allowances be calculated on the time-worker's base wage plus time-worker's national bonus.

(2) That piece-workers be guaranteed a minimum payment of the time-worker's base wage plus time-worker's national bonus.

The tribunal finds against the claim specified in (1) and in favour of the claim specified in (2) above.

### Road Haulage Wages

The Minister of Labour & National Service has made an order which came into operation on December 6 confirming proposals of the Road Haulage Central Wages Board for wage increases and other improvements for workpeople in the road haulage industry.

Adult drivers in London, in grade 1 areas and on long-distance services received an increase of 2s. 6d. a week, those in grade 2 areas received an increase of 3s. a week, and those in grade 3 areas an increase of 3s. 6d. a week.

## Questions in Parliament

### First Class Compartments

Lt.-Colonel Sidney Shepherd (Newark—C.) on December 15 asked the Parliamentary Secretary, Ministry of War Transport, whether he would issue an order making it compulsory to seat four a side in first class railway carriages if there are first class passengers for whom no seats are available.

Mr. P. J. Noel-Baker (Joint Parliamentary Secretary, Ministry of War Transport): Some first class compartments are so constructed that they normally seat four a side, or five a side with the arm rests raised; others are so constructed that not more than three can sit in reasonable comfort. In view of these facts, I think Mr. Shepherd will agree that an order in the terms which he proposes would not be desirable. I am glad to assure him, however, that the railway staff have been told that, where the construction of the compartment permits, arm rests must be raised if the accommodation is required. In all such compartments notices have been put up, informing the passengers that there are four seats a side.

### Locomotive Fuel Consumption

Mr. P. W. Jewson (Great Yarmouth—Lib. Nat.) on December 15 asked the Parliamentary Secretary, Ministry of War Transport, what was the quantity of fuel for each running mile used on main-line trains now and before the war.

Mr. Noel-Baker: I regret that the figures are not available; the average pre-war consumption of fuel for each locomotive mile of all engines was 52.5 lb., compared with 61.44 lb. at present. The increased consumption is due to the quality of the fuel now used, to increase in the number of freight trains run, and to heavy loading of both passenger and freight trains.

Mr. Evelyn Walkden (Doncaster—Lab.): Is not another factor the condition of the engines, because of lack of repairs?

Mr. Noel-Baker: That does affect it, undoubtedly; but I am glad to say that the repairs position is better now than it was a little while ago.

### Restaurant and Buffet-Car Facilities

Mr. J. J. Davidson (Glasgow, Maryhill—Lab.) on December 15 asked the Parliamentary Secretary, Ministry of War Transport, whether he would consider extending the dining-car or buffet facilities existing on certain Southern Railway routes to trains travelling from Scotland to London, giving particular attention to trains containing service men and women.

Mr. Noel-Baker: The purpose of withdrawing restaurant-cars was to increase the seating capacity of the trains. The question of restoring restaurant-cars on some of the trains between Scotland and London was carefully and sympathetically considered at the end of October, but in every case the provision of a restaurant-car would have involved a reduction in seating capacity with the result that more passengers would have had to stand, or extra engines would have had to be provided. These services already are overcrowded and I regret that I would not, therefore, feel justified in giving effect to Mr. Davidson's suggestion.

Mr. Davidson: Will the Parliamentary Secretary keep in mind that even buffet facilities take up very little space, that the journey from Scotland to London takes up practically the whole day and that they are mostly Service men, Government representatives and business men on Government work who are making these journeys?

Mr. Noel-Baker: I have all these points very much in mind. I have done my best to increase railway bars and other facilities on railway stations, but I am afraid that it is really impossible to put on restaurant or even buffet-cars.

### London Railway Workers' Amenities

The Rev. R. W. Sorensen (West Leyton—Lab.) on December 9 asked the Parliamentary Secretary, Ministry of War Transport, if he was aware of the resolution passed by a conference of railway workers requesting the provision of certain amenities, in particular, at Stratford and Temple Mills sidings; and whether any steps were being taken to enable improvements to be effected that would have been possible had the 1937 Factory Act been operable on the railways.

Mr. Noel-Baker stated in a written answer: Yes, Sir, the Minister of War Transport received a copy recently of a resolution about amenities for railway workers adopted at a meeting held by the London District of the National Union of Railwaymen. The Minister noted that the resolution had been referred to the joint executive committee of the three railway unions, and when its receipt was acknowledged it was made clear that in accordance with established practice the Minister of War Transport would await any

representations made to him by the head office of the union concerned.

### Holiday Travel

Mr. T. Fraser (Hamilton—Lab.) on December 9 asked the Minister of Labour whether Scottish girls directed to do war work in the south would be given free travel vouchers to their homes at the Christmas or New Year holiday period.

Mr. Ernest Bevin (Minister of Labour & National Service): No, Sir. As explained on April 30, the scheme of travel vouchers at reduced rates applies during the summer months only. This restriction is necessitated by the heavy demands on the railways and is even greater now than when I made the announcement.

### Transport Industry

Mr. Ellis Smith (Stoke—Lab.) on December 8 asked the Parliamentary Secretary, Ministry of War Transport, if he was aware of the need to reduce transport charges to the minimum after the war, to put it on an efficient national basis, speed up deliveries and cut out all unnecessary overhead charges; and what action had been taken to these ends.

Mr. Noel-Baker: The Minister of War Transport has under active examination the complex problem of post-war transport. As he has said in the House of Lords, his objective is a transport system so co-ordinated and run that it can provide and does provide the best possible service for the least real cost to the community as a whole.

Mr. Smith: When the Minister is examining these questions, will he take into consideration that the people of this country, after 20 years of the service, are determined not to be held back by the kind of people who put the supplementary to the last question?

Mr. G. Mathers (Linlithgow—Lab.): Is this co-ordination to be under national ownership?

Mr. Noel-Baker: That is another question.

Mr. Neil Maclean (Govan—Lab.): Is the Parliamentary Secretary considering the transport system of the Western Isles?

Mr. Noel-Baker: Everything is being considered.

### Reorganisation of Ports

Mr. Ellis Smith (Stoke—Lab.) on December 8 asked the Parliamentary Secretary, Ministry of War Transport, if it was intended to organise the ports on a more efficient basis for post-war purposes to land the loads at the ports nearest to the places where they were required, cutting out overlapping as far as possible; and if it was intended to benefit from our war experience in transport in every possible manner in framing post-war plans.

Mr. Noel-Baker: In considering the organisation of the ports after the war, the principle which Mr. Smith puts forward in the first part of his question certainly will be borne in mind. Many expedients have of necessity been adopted in the organisation of transport which would not be economical or convenient in time of peace; but much of our experience has been of lasting value and Mr. Smith may rest assured that it will not be forgotten in the preparation of our post-war plans.

Mr. A. Edwards (Middlesbrough East—Lab.): Is the Parliamentary Secretary aware that the Port of London still has vast plans for extension, and is it not a fact that they have concentrated on London, which has suffered under a serious handicap during the war, whereas other ports, much bigger and very much cheaper, have been neglected?

Mr. Noel-Baker: Those considerations will be borne in mind by the Minister of War Transport.



## "Coming of Age" of British Main-Line Railways

### Congratulatory Messages

A luncheon was held at the Dorchester Hotel on December 22, to commemorate the "Coming of Age" of the four "Main-Line Railway Companies of Great Britain." A report of the proceedings of the luncheon and a list of those present will be published in our next issue. Sir Ronald Matthews, Chairman of the Railway Companies Association, has received a number of congratulatory messages, of which the following is a selection :—

#### ADMIRALTY, WAR OFFICE, AND AIR MINISTRY

On this, the 21st anniversary of the formation of the four main-line railways, we send our congratulations to the managers and staff. During the war they have excelled themselves, and the magnificent service they rendered during the heavy air raids was a triumph of organisation, devotion to duty, and outstanding skill. That they have been able to handle the vast amount of military traffic and still provide the civilian population with a train service on the present scale, despite depleted and diluted staffs, is a great tribute to those men and women who are giving devoted and self-sacrificing service on the railway system and to the capabilities of the directing staff. The rapidity with which the damaged tracks were re-opened to traffic at the time of the heavy raids on this country proved that the engineering staffs of the great railways are second to none. It may be that even greater burdens will be placed on the railways in the future, but we are confident that the same spirit of co-operation, together with the ability and loyalty they have always displayed, will overcome all difficulties. We are grateful to all railway servants, of every grade, for the way in which they have responded to all the calls made upon them. They will certainly have the satisfaction of knowing, when the final triumph of our cause is achieved, that they have played a proud and praiseworthy part in the victory of the United Nations.

A. V. ALEXANDER  
First Lord of the Admiralty.

P. J. GRIGG  
Secretary of State for War

A. H. M. SINCLAIR  
Secretary of State for Air

#### CANADIAN PACIFIC RAILWAY COMPANY

I understand the four great British railway systems will celebrate on January 1 the twenty-first anniversary of the stabilisation of the industry in Britain. The Canadian Pacific extends congratulations on the very satisfactory results achieved by the four systems individually in days of peace and for their most remarkable performance collectively since the outbreak of war. The performance is one which has been witnessed with admiration by railway operators in all parts of the world and particularly by your brothers in the British Commonwealth of Nations.

D. C. COLEMAN,  
Chairman & President

#### CANADIAN NATIONAL RAILWAYS

All ranks Canadian National Railways join in congratulating four main-line British railway companies upon attainment twenty-one years conspicuously meritorious operation in peace and in war. Especially do we who are earnestly devoting our full energies to Canada's great war effort desire express to all railway workers of Great Britain our unbounded admiration their gallantry in

keeping lines of traffic open under circumstances of unparalleled difficulty and danger. You have set distinguished example to the world of free men and we are proud to be of the fraternity to which you have brought such high honour.

R. C. VAUGHAN  
Chairman & President

#### INDIAN RAILWAY CONFERENCE ASSOCIATION

Congratulations from Indian Railway Conference Association to British main-line railways on attainment of 21 years of operation, individually in peace and collectively in war.

C. G. W. CORDON,  
President

#### SOUTH AFRICAN RAILWAYS & HARBOURS

The South African Railways associate themselves in spirit with celebration of 21st birthday of four main-line British railway companies. Your united purpose has made you a bulwark in the war effort and the celebration of your majority marks another milestone in the long record of achievement by railways throughout the world. Your progress has been an inspiration and your record of public service exemplary. Please accept heartiest congratulations from General Manager and

Management of South African Railways & Harbours Administration.

C. M. HOFFE,  
General Manager

#### NEW SOUTH WALES GOVERNMENT RAILWAYS

Hearty congratulations main-line railways on attainment twenty-first birthday January 1. May you be celebrating peace on your next anniversary.

T. J. HARTIGAN  
Commissioner for Railways

#### ASSOCIATION OF AMERICAN RAILROADS

On occasion of twenty-first birthday anniversary of the amalgamation of the four British main-line railway companies occurring on January 1 and which am told is being celebrated December 22, I wish to extend on behalf of railways of the United States our congratulations on your accomplishments of the past and our best wishes for the future.

J. J. PELLEY  
President

#### BRITISH-OWNED ARGENTINE RAILWAYS

British-owned railways in Argentina heartily congratulate British main-line companies on their impending Coming of Age, and offer sincere wishes that your outstanding services to the country may be rewarded by ever increasing prosperity.

J. A. GOUDGE  
FOLLETT HOLT  
W. HOWARD-WILLIAMS  
DAVIDSON

## Notes and News

**Uruguayan Foreign Trade.**—During the first ten months of 1943, exports from Uruguay amounted in value to 82,358,000 pesos, and imports to 52,614,000 pesos.

**Livestock Rates in Argentina.**—By a Decree which describes the concession as "experimental," the Argentine Government has authorised an increase of 10 per cent in rates for the carriage of livestock on all privately-owned railways in that country, as well as on certain of the State-owned lines. The measure is valid until June 30, 1944.

**Colombian Railway Extension.**—Plans have been announced in Colombia for the extension of the Troncal de Occidente Railway from Anza (Department of Antioquia) to the city of Antioquia. The completion of this section of railway will open up a rich agricultural area west and north-west of Medellin. A sketch map of the railways of Colombia was published at page 14 of our issue of July 2 last (see also editorial note, p. 630).

**Accidents in U.S.A.**—Early on December 6, the last three coaches of the southbound Tamiami Champion (East Coast) diesel-operated streamline train of the Atlantic Coast Line Railroad became derailed, and were thrown on to the track used by northbound trains. The cause of the derailment is not known. One person is stated to have been killed, and several injured. A snowstorm was in progress. Alertness on the part of railway staff and passengers resulted in a following train being brought to rest in time; but, despite urgent signals to the northbound Tamiami Champion (West Coast), the latter was unable to stop sufficiently quickly, and crashed into the derailed coaches. By the second accident the number of those killed is stated to have been brought up to about 70.

**U.S.A. Freight Rates.**—The increases in freight rates authorised by the Interstate

Commerce Commission for American railways in March, 1942, which were suspended from May 15, 1943, until January 1, 1944, have been suspended for a further period to June 30 next. The increases amounted in most cases to 6 per cent.

**U.S.A. Railway Strike.**—It was announced on December 15 by the five brotherhoods (unions) of railway operating employees in the U.S.A. that 97.7 per cent. of their members had voted for a strike, and that "in protest against frozen wages and the rising cost of living, 350,000 members of the five railroad yard and road service brotherhoods will leave their jobs in a nation-wide strike beginning at 6 a.m. on December 30." The announcement stated that about one-quarter of the country's railways would be affected on that date, and that the brotherhoods' "progressive strike" plan called for stoppages on selected groups of lines on each of the succeeding three days. It is understood that the brotherhoods, which had asked for a general increase in wages of \$3 a day, are dissatisfied with the award of an emergency board of 4 cents an hr.

**Shortage of Coal Wagons.**—During the debate on the adjournment in the House of Commons on December 17, the Joint Parliamentary Secretary to the Ministry of War Transport said that influenza had kept from duty 10 per cent. of the railways' staff during recent weeks; on one day the L.M.S.R. had had to cancel 71 passenger trains to find crews for goods trains, but even by those measures the needs of goods traffic had not been satisfied. Everything possible was being done to speed the repair and turn-round of wagons. The number awaiting repair was a little over 5 per cent. of the total. In the last eight weeks they had improved the situation by 22,000 wagons, and the figure was better today by 3,000 than on January 1 last. Labour supplies were coming in, and it was expected to bring the figure down to 4 per cent., and so place a

further 16,000 wagons on the rails. An order for 10,000 14-ton mineral wagons had been placed, and one for 5,000 was pending.

#### Vandalism on Scottish Railways.

During the past six months the number of articles maliciously damaged in L.M.S.R. railway carriages in Scotland was 21,000—an average of 116 a day. Articles damaged during that period included more than 10,000 electric bulbs broken; 2,800 windows broken; 3,500 window straps cut; 1,200 electric shades broken; 1,500 compartments with upholstery slashed; and upwards of 900 luggage nets damaged.

#### Brazilian Foreign Trade.—The Board

of Trade Journal states that, according to the Brazilian Federal Council of Foreign Trade, imports and exports during the period January-June, 1943, were valued at Cr. \$2,450,006,000 and Cr. \$3,767,926,000, respectively. The favourable trade balance amounted to Cr. \$1,317,920,000, equivalent to about £16,500,000, which compares favourably with the approximate balance of £35,600,000 for the whole of 1942, and with that of £15,000,000 for 1941.

#### The Chicago Underground.

The initial public service on the Chicago Underground, which was opened for regular traffic on October 17 last (a day after the formal ceremony recorded in our October 22 issue, page 422), is made up of a portion of the former elevated service; the balance of this service still uses the Loop. The intercity North Shore electric trains are prohibited from using the underground lines for a year, but, if conditions then permit of such use without interfering with the local service, it is possible that the North Shore trains will be diverted to run in the subway.

#### Railway Convalescent Homes.

The income and expenditure account of the Railway Convalescent Homes for the year ended December 31, 1942, shows an income of £46,483, and expenditure of £34,725, leaving a balance of £11,758. The income was made up of £40,735 from railway staff collections; £550 from donations from the public, etc.; £3,924 from investments; £372 from hospital and war department services; and £902 from sundries. Expenditure on maintenance was £29,816, and on administration, £4,909. The number of patients who used the homes in 1942 was 3,206, which included 2,416 men, 740 women, and 50 babies.

**Pullman Car Co. Ltd.**—Gross receipts for the year ended September 30, 1943, including agreed compensation from the railway companies, amounted to £51,709 (£107,314). Working expenses were £15,201, compared with £55,618, and the net profit was £36,508, against £51,696. Sundry credits of £1,087 bring the total profit to £37,595. Deducting £37,159 for reserve for depreciation of rolling stock, £360 for depreciation of buildings, machinery, etc., £3,300 for reserve for taxation, and £4,954 for war damage contribution, leaves a loss of £8,178. This, added to the loss of £10,804 brought forward, leaves a loss to be carried forward of £18,982.

**John I. Thornycroft & Co. Ltd.**—Profit for the year ended July 31, 1943, is £153,334 (£130,895), and the balance of profit brought forward from the previous year was £75,699, making a total of £229,033. Of this amount interim dividends absorbed £30,375. Final dividends are:—3 per cent. on the cumulative preference shares, 5½ per cent. on the participating preferred ordinary shares, and 8 per cent.

on the ordinary shares. The sum of £50,000 is transferred to reserve account, and the amount carried forward is £105,533. Provision has been made in the accounts for depreciation on buildings, plant, and machinery. All works of the company have been fully employed during the past year.

**Coast Lines Limited.**—Negotiations have been concluded for Coast Lines Limited to purchase the controlling interest in the Tyne-Tees Shipping Co., Ltd., of Newcastle-on-Tyne, and the Free Trade Wharf Co., Ltd., of London (which is entirely owned by the first-named company). The price to be paid is £1,227,636, and a circular is being sent to the shareholders intimating that Coast Lines Limited is prepared to pay £3 for each £1 unit of stock, and 30s. for each £1 share 10s. paid.

#### Road Construction Expenditure in

Argentina.—It is announced officially that the Argentine National Roads Board has either in progress or under study works estimated to involve a total disbursement of 192,713,616 pesos. Of this sum, 103,057,668 pesos represents the cost of work in progress on the "national highway" system, and 58,750,648 pesos expenditure on "provincial" road construction under the Federal aid arrangement; projects at present under study account for a further 30,905,300 pesos. To the foregoing must be added disbursements by the Board, already made or projected, for construction work on access roads to railway stations, amounting to 1,286,544 pesos, bringing the total cost of road construction, actual or projected, up to 194,000,000 pesos. Some brief details concerning the classification of roads in Argentina under the heads of "national" or "provincial" were given in our issue of November 12 last.

#### Another Transatlantic Record.

Captain J. Barclay, one of the senior Trans-Canada Air Lines captains, established a new non-stop Montreal to Britain transatlantic record of 11 hr. 56 min. when he piloted the plane carrying the Hon. C. D. Howe, Canadian Minister of Supply; Mr. H. J. Symington, President of Trans-Canada Air Lines; and Mr. J. R. Baldwin, External Affairs Department; to London to attend the Empire Conference on Air Transport, using the Canadian Government transatlantic air service which is operated by Trans-Canada Air Lines. The service handles official personnel and mail to and from the Canadian Overseas Forces. The previous world's record of 12 hr. 26 min. for the crossing was established by Captain R. F. George, Operations Manager of Trans-Canada Air Lines. The company is an associate of the Canadian National Railways.

## Contracts and Tenders

Below is given a list of orders placed recently by the Egyptian State Railways:—

Samuel Fox & Co. Ltd.: Fibrous staybolt steel.  
Samuel Osborn & Co. Ltd.: Fibrous staybolt steel.  
Ericsson Telephones Limited: Extension switches.  
General Electric Co. Ltd.: Clips.  
John Fowler & Co. (Leeds) Ltd.: Alternator set.  
Lancashire Dynamo & Crypto Limited: Alternator and changeover switch.  
Sentinel Waggon Works (1936) Limited: Spares for steam railcars.  
Joseph Tomey & Sons Ltd.: Gauge glass.

## British and Irish Railway Stocks and Shares

| Stocks                             | Highest<br>1942 | Lowest<br>1942 | Prices              |               |
|------------------------------------|-----------------|----------------|---------------------|---------------|
|                                    |                 |                | Dec.<br>20,<br>1943 | Rise/<br>Fall |
| G.W.R.                             |                 |                |                     |               |
| Cons. Ord. ....                    | 58              | 39             | 61½                 | —             |
| 5% Cons. Pref. ....                | 115½            | 105½           | 117                 | +             |
| 5% Red. Pref. (1950) ..            | 109½            | 103½           | 107                 | —             |
| 5% Rt. Charge .....                | 133½            | 123½           | 129½                | —             |
| 5% Cons. Guar. ....                | 130½            | 121½           | 127½                | —             |
| 4% Deb. ....                       | 117             | 105            | 114                 | —             |
| 4½% Deb. ....                      | 118             | 108            | 114                 | —             |
| 4½% Deb. ....                      | 125             | 113            | 120½                | +             |
| 5% Deb. ....                       | 137             | 127            | 130½                | —             |
| 2½% Deb. ....                      | 77              | 70             | 74½                 | —             |
| L.M.S.R.                           |                 |                |                     |               |
| Ord. ....                          | 28½             | 16½            | 32½                 | —             |
| 4% Pref. (1923) ....               | 63½             | 50½            | 61½                 | —             |
| 4% Pref. ....                      | 76½             | 67½            | 76½                 | +             |
| 5% Red. Pref. (1955) ..            | 103½            | 94½            | 102½                | —             |
| 4% Guar. ....                      | 104½            | 97½            | 101½                | +             |
| 4% Deb. ....                       | 108½            | 101½           | 105½                | +             |
| 5% Red. Deb. (1952) ...            | 111             | 107½           | 109½                | —             |
| L.N.E.R.                           |                 |                |                     |               |
| 5% Pref. Ord. ....                 | 9½              | 2½             | 10½                 | —             |
| Def. Ord. ....                     | 5               | 1½             | 5½                  | +             |
| 4% First Pref. ....                | 62              | 49½            | 60½                 | —             |
| 4% Second Pref. ....               | 32½             | 18½            | 33½                 | —             |
| 5% Red. Pref. (1955) ..            | 95½             | 79             | 98½                 | —             |
| 4% First Guar. ....                | 98              | 88             | 97½                 | +             |
| 4% Second Guar. ....               | 90              | 78             | 90                  | +             |
| 3% Deb. ....                       | 85              | 76             | 81½                 | —             |
| 4% Deb. ....                       | 106½            | 100½           | 103½                | —             |
| 5% Red. Deb. (1947) ...            | 106             | 103            | 103                 | —             |
| 4½% Sinking Fund<br>Red. Deb. .... | 106             | 102½           | 104½                | —             |
| SOUTHERN                           |                 |                |                     |               |
| Pref. Ord. ....                    | 77              | 61½            | 77                  | —             |
| Def. Ord. ....                     | 23½             | 14½            | 24½                 | —             |
| 5% Pref. ....                      | 112½            | 104            | 116½                | +             |
| 5% Red. Pref. (1964) ...           | 110½            | 105½           | 112½                | —             |
| 5% Guar. Pref. ....                | 131             | 121½           | 126½                | —             |
| 5% Red. Guar. Pref.<br>(1957) .... | 115½            | 109½           | 112½                | —             |
| 4% Deb. ....                       | 116             | 104½           | 111½                | —             |
| 5% Deb. ....                       | 134             | 125½           | 127                 | —             |
| 4% Red. Deb. (1962-<br>67) ....    | 110½            | 106            | 107½                | —             |
| 4% Red. Deb. (1970-<br>80) ....    | 111             | 106½           | 108½                | —             |
| FORTH BRIDGE                       |                 |                |                     |               |
| 4% Deb. ....                       | 109½            | 108            | 106                 | —             |
| 4% Guar. ....                      | 105½            | 100            | 103½                | —             |
| L.P.T.B.                           |                 |                |                     |               |
| 4½% "A" ....                       | 122½            | 111            | 119                 | +             |
| 5% "A" ....                        | 131½            | 122            | 129                 | +             |
| 3% Guar. (1967-72) ...             | 95½             | 97½            | 98                  | —             |
| 5% "B" ....                        | 121             | 111½           | 119                 | +             |
| 5% "C" ....                        | 56½             | 38             | 65½                 | +             |
| MERSEY                             |                 |                |                     |               |
| Ord. ....                          | 27½             | 20½            | 33                  | —             |
| 3% Perp. Pref. ....                | 61½             | 56½            | 66                  | —             |
| 4% Perp. Deb. ....                 | 102½            | 99½            | 103                 | —             |
| 3% Perp. Deb. ....                 | 80½             | 76             | 79                  | —             |
| IRELAND                            |                 |                |                     |               |
| BELFAST & C.D.                     |                 |                |                     |               |
| Ord. ....                          | 9               | 4              | 6½                  | —             |
| G. NORTHERN                        |                 |                |                     |               |
| Ord. ....                          | 29½             | 12½            | 23                  | +             |
| Pref. ....                         | —               | —              | 43½                 | —             |
| Guar. ....                         | —               | —              | 60                  | —             |
| Deb. ....                          | —               | —              | 81½                 | —             |
| G. SOUTHERN                        |                 |                |                     |               |
| Ord. ....                          | 25              | 10             | 29                  | +             |
| Pref. ....                         | 29              | 12½            | 30                  | +             |
| Guar. ....                         | 53              | 35½            | 63                  | +             |
| Deb. ....                          | 71½             | 55½            | 87½                 | +             |

§ ex-dividend

**SPARE TYRES, TUBES, AND WHEELS: P.S.V. GAS PRODUCERS.**—The Directorate of Vehicle Maintenance & Alternative Fuels announces that the appropriate numbers of spare tyres and wheels which should be provided by operators for the producer-gas trailers allocated to them are 10 per cent. of the total number of tyres allotted to them for tyres and tubes, and 5 per cent. for wheels. Operators should obtain these spares through the normal channels. The Directorate will do all possible to expedite deliveries.

## Railway Stock Market

Year-end influences prevented improvement of business in the stock and share markets, and in all sections only small movements were recorded. Nevertheless, the general undertone was firmer when sentiment was assisted by the news of the progress being made by the Prime Minister, and a better trend developed in British Funds. At the time of writing the tendency in home railway stocks has also improved, but demand was very moderate because of inactive markets, and earlier small declines in the junior stocks have not been regained. On the other hand, firmness was maintained in prior charges, and in a few instances fractional gains were shown on balance. Home railway prior charges still offer yields which compare favourably with the return on other stocks having similar high-class investment merits. The dates mentioned here last week show that dividend announcements of the main-line railways are to be made a little earlier on this occasion, and consequently, it is not unlikely the junior stocks will attract increased attention in the first six weeks of 1944. Bearing in mind the large yields still offered, and the talk of possible small increases in dividends on L.N.E.R. second preference and L.M.S.R. ordinary, there may be good scope for improvement in prices; although it would seem that home railways are unlikely to show a strong advance unless there is a sustained rally in the stock and share markets. Despite the easier tendency in evidence in leading industrial shares in

recent weeks, they still return only small yields. There is no logical reason why home railway junior stocks should be on a basis which offers yields of twice those obtainable on leading industrials, unless railway stockholders are to be treated unfairly in any post-war transport reorganisation plans. There is no reason to suppose that the latter will be the case. Indeed, in responsible quarters there is considered to be every ground to assume that, whatever the final decision as to transport organisation and control after the war, the railways and their stockholders will receive equitable treatment. Meanwhile, dividends at around the 1942 rates can be considered as being virtually guaranteed by the Government because of the financial agreement. Taking a long view, however, the outlook for the railways, and that of most other important industries, will turn in a large measure on the success achieved in securing full employment of the country's resources after the war.

Compared with a week ago, Great Western ordinary has eased from 61½ to 61 at the time of writing; the 4 per cent. debentures showed a fractional gain to 114½, and the guaranteed and 5 per cent. preference stocks have been maintained at 128 and 116½ respectively. L.M.S.R. ordinary was 32½, as compared with 32½ a week ago; the senior preference eased from 76½ to 76, and the 1923 preference from 61½ to 61. L.M.S.R. 4 per cent. guaranteed was again quoted at par. L.N.E.R. preferred eased to 10½, and the deferred remained at 4½, and the second preference was 33½, compared

with 33½. L.N.E.R. 4 per cent. first preference also eased from 60½ to 60, at which there is a yield of 6½ per cent. The latter seems generous, when considered in relation to the investment merits of this stock, which is quoted a point below L.M.S.R. 4 per cent. 1923 preference. L.N.E.R. first guaranteed has improved from 97 to 97½ at the time of writing, and the second guaranteed from 88½ to 89. Among Southern stocks, the deferred at 24½ was unchanged on balance, but the preferred eased from 76½ to 76½; the 4 per cent. debentures improved from 111½ to 112, and the 5 per cent. preference was again 115½. London Transport "C" was 65 compared with 65½ a week ago.

Movements in Argentine railways were small, but on balance gains were shown in various ordinary stocks and also in some of the lower-priced preference stocks. Consideration of the annual reports has emphasised the justice of the claims of the railways being made to the authorities in that country. Rumours have been current that the railway mission has achieved a good measure of success, and this no doubt partly explains the firmer trend in stock prices at the time of writing. These rumours, are however, vague in character. An official announcement as to the position will naturally be made in due course. Further small gains were shown in Central Argentine stocks. Elsewhere, Leopoldina debentures moved better to 54, and United of Havana debentures at 31 regained part of an earlier decline. Canadian Pacific failed to hold all their recent rise.

### Traffic Table and Stock Prices of Overseas and Foreign Railways

| Railways                 | Miles open                    | Week ending                | Traffic for week |                                   | No. of Weeks | Aggregate traffic to date |             |                      | Shares or stock | Prices       |               |               |                     |      |     |      |     |
|--------------------------|-------------------------------|----------------------------|------------------|-----------------------------------|--------------|---------------------------|-------------|----------------------|-----------------|--------------|---------------|---------------|---------------------|------|-----|------|-----|
|                          |                               |                            | Total this year  | Inc. or dec. compared with 1941/2 |              | Totals                    |             | Increase or decrease |                 | Highest 1942 | Lowest 1942   | Dec. 17, 1943 | Yield % (See Notes) |      |     |      |     |
|                          |                               |                            |                  |                                   |              | 1942/3                    | 1941/2      |                      |                 |              |               |               |                     |      |     |      |     |
| South & Central America  | Antofagasta (Chile) & Bolivia | 834                        | 12.12.43         | 28,820                            | —            | £ 9,640                   | 50          | £ 1,422,690          | £ 1,095,670     | +            | 327,020       | Ord. Stk.     | 14                  | 7½   | 13½ | Nil  |     |
|                          | Argentine North Eastern ...   | 753                        | 11.12.43         | 13,332                            | +            | 1,783                     | 24          | 336,150              | 319,992         | +            | 16,158        | Ord. Stk.     | 6½                  | 3    | 7   | Nil  |     |
|                          | Bolivar ...                   | 174                        | Nov., 1943       | 5,143                             | —            | 1,237                     | 48          | 57,956               | 53,519          | —            | 4,437         | 6 p.c. Deb.   | 19½                 | 10   | 21½ | Nil  |     |
|                          | Brazil ...                    | 2,807                      | 11.12.43         | 105,000                           | —            | 600                       | 24          | 2,205,600            | 2,124,300       | +            | 81,300        | Bonds         | 20½                 | 9    | 21  | Nil  |     |
|                          | Buenos Ayres & Pacific        | 5,080                      | 11.12.43         | 185,280                           | +            | 17,520                    | 24          | 3,115,500            | 3,113,520       | +            | 330,060       | Ord. Stk.     | 7½                  | 4    | 6½  | Nil  |     |
|                          | Buenos Ayres Great Southern   | 1,930                      | 11.12.43         | 58,200                            | —            | 1,200                     | 24          | 1,15,780             | 1,240,020       | —            | 24,240        | Ord. Stk.     | 12½                 | 7½   | 14½ | Nil  |     |
|                          | Buenos Ayres Western ...      | 3,700                      | 11.12.43         | 162,132                           | +            | 15,801                    | 24          | 3,276,990            | 3,000,816       | +            | 276,174       | "             | 12½                 | 6    | 12½ | Nil  |     |
|                          | Central Argentine ...         | Do.                        | 11.12.43         | 33,159                            | —            | 6,440                     | 24          | 764,614              | 534,557         | +            | 230,057       | "             | 9½                  | 4½   | 9½  | Nil  |     |
|                          | Do.                           | 972                        | 11.12.43         | 22,459                            | —            | 9,328                     | 17          | 94,493               | 51,375          | +            | 43,118        | Ord. Stk.     | 8                   | 4    | 4   | Nil  |     |
|                          | Cent. Uruguay of M. Video     | 262                        | Oct., 1943       | 25,000                            | —            | 8,470                     | 44          | 243,607              | 173,705         | +            | 69,920        | Ord. Stk.     | 16½                 | 11   | 15  | Nil  |     |
|                          | Costa Rica ...                | 70                         | Nov., 1943       | 17,250                            | —            | 342                       | 24          | 467,556              | 441,240         | +            | 26,532        | 1 Mt. Db.     | 90½                 | 89   | 95½ | 6½   |     |
|                          | Dorada ...                    | 808                        | 11.12.43         | 22,400                            | —            | 1,600                     | 50          | 837,000              | 58,000          | —            | 250,000       | Ord. Stk.     | 33                  | 4½   | 7   | Nil  |     |
|                          | Entre Rios ...                | 1,030                      | 11.12.43         | 22,400                            | —            | 1,600                     | 50          | 837,000              | 58,000          | —            | 250,000       | Ord. Sh.      | 9½                  | 9½   | 30½ | Nil  |     |
|                          | Great Western of Brazil       | 794                        | Oct., 1943       | \$511,566                         | —            | \$72,075                  | 43          | \$6,023,847          | \$5,072,794     | +            | \$951,053     | "             | —                   | —    | —   | Nil  |     |
|                          | International of C. Amer.     | 22½                        | Nov., 1943       | 7,545                             | —            | 1,340                     | 48          | 90,905               | 80,810          | +            | 10,095        | 1st Pref.     | 1½                  | 5/3  | 2   | Nil  |     |
|                          | Interoceanic of Mexico        | 1,918                      | 11.12.43         | 45,464                            | —            | 18,322                    | 50          | 1,766,188            | 1,508,915       | +            | 257,273       | 5 p.c. Deb.   | 11½                 | 3    | 87½ | Nil  |     |
|                          | La Guaira & Caracas ...       | 483                        | 7.12.43          | ps. 440,300                       | —            | ps. 130,100               | 23          | ps. 9,147,200        | ps. 6,580,000   | +            | ps. 2,566,500 | Ord. Stk.     | 6½                  | 3½   | 6½  | Nil  |     |
| Leopoldina ...           | 319                           | Sep., 1943                 | 16,809           | —                                 | 3,925        | 45                        | 4,924       | 35,992               | —               | 11,932       | "             | 1             | 1                   | 1    | Nil |      |     |
| Midland Uruguay ...      | 382                           | 30.11.43                   | 9,597            | —                                 | 4,100        | 48                        | 147,068     | 177,555              | —               | 30,487       | Ord. Sh.      | 77½           | 3½                  | 72½  | Nil |      |     |
| Nitrate ...              | 274                           | 10.12.43                   | \$53,061         | —                                 | \$6,239      | 24                        | \$1,249,379 | \$95,850             | +               | \$343,529    | Ord. Sh.      | 53            | 40                  | 70   | 8½  |      |     |
| Paraguay Central ...     | 1,059                         | Nov., 1943                 | 10,629           | —                                 | 26,995       | 22                        | 521,655     | 414,622              | +               | 107,033      | Pr. Li. Stk.  | 51            | 40                  | 70   | 8½  |      |     |
| Peruvian Corporation ... | 100                           | Oct., 1943                 | c 67,000         | —                                 | c 14,000     | 17                        | c 335,000   | c 236,000            | —               | c 99,000     | Pref.         | 19½           | 5½                  | 12   | Nil |      |     |
| Salvador ...             | 153½                          | 5.12.43                    | 49,500           | —                                 | 10,774       | 49                        | 2,155,010   | 1,612,934            | +               | 342,767      | Ord. Stk.     | 59            | 41                  | 59½  | 3½  |      |     |
| San Paulo ...            | 160                           | Nov., 1943                 | 5,250            | —                                 | 313          | 21                        | 27,500      | 25,403               | —               | 2,097        | Ord. Sh.      | 41½           | 23½                 | 25½  | Nil |      |     |
| Taltal ...               | 1,301                         | 11.12.43                   | 37,216           | —                                 | 14,223       | 24                        | 1,091,800   | 1,000,621            | +               | 88,179       | Ord. Stk.     | 8½            | 2½                  | 4    | Nil |      |     |
| Uruguay Northern ...     | 73                            | Sep., 1943                 | 1,283            | —                                 | 176          | 13                        | 4,110       | 3,305                | —               | 805          | Ord. Stk.     | —             | —                   | —    | —   | Nil  |     |
| Canada                   | Canadian Pacific ...          | 17,034                     | 14.12.43         | 1,208,000                         | +            | 112,400                   | 50          | 56,409,200           | 48,650,200      | +            | 7,759,000     | Ord. Stk.     | 16½                 | 9½   | 15½ | Nil  |     |
|                          | India                         | Barsi Light ...            | 202              | Aug., 1943                        | 15,285       | +                         | 2,003       | 22                   | 107,055         | 76,587       | +             | 30,468        | —                   | —    | —   | —    | Nil |
|                          |                               | Bengal-Nagpur ...          | 3,267            | Oct., 1943                        | 1,001,025    | +                         | 138,600     | 30                   | 7,209,525       | 6,162,825    | +             | 1,046,700     | Ord. Stk.           | 102½ | 88  | 102½ | 3½  |
|                          |                               | Madras & Southern Mahratta | 2,939            | 10.10.43                          | 247,050      | —                         | 107         | 28                   | 5,325,600       | 4,541,613    | +             | 783,787       | "                   | 105½ | 87  | 107½ | 6½  |
| South Indian ...         | 2,349                         | 31.10.43                   | 203,479          | +                                 | 17,598       | 30                        | 4,214,375   | 3,709,442            | +               | 504,933      | "             | 103½          | 88½                 | 105½ | 4½  |      |     |
| Various                  | Egyptian Delta ...            | —                          | 31.10.43         | 22,313                            | +            | 5,063                     | 32          | 314,521              | 241,710         | +            | 72,811        | Pr. Sh.       | 5½                  | 1½   | 4½  | Nil  |     |
|                          | Manila ...                    | —                          | —                | —                                 | —            | —                         | —           | —                    | —               | —            | —             | B. Deb.       | 44                  | 35   | 43½ | 13½  |     |
|                          | Midland of W. Australia ...   | 277                        | Oct., 1943       | 33,998                            | —            | 1,095                     | 17          | 135,691              | 119,414         | +            | 16,277        | Inc. Deb.     | 95                  | 90   | 100 | 6    |     |
|                          | Nigerian ...                  | 1,900                      | 25.9.43          | 67,776                            | —            | 9,439                     | 25          | 1,670,444            | 1,489,022       | +            | 188,022       | "             | —                   | —    | —   | —    | Nil |
|                          | South Africa ...              | 13,291                     | 30.10.43         | 825,805                           | —            | 44,197                    | 31          | 25,562,333           | 23,650,797      | +            | 1,991,653     | "             | —                   | —    | —   | —    | Nil |
|                          | Victoria ...                  | 4,774                      | July, 1943       | 1,404,891                         | —            | 86,055                    | —           | —                    | —               | —            | —             | —             | —                   | —    | —   | —    | Nil |

Note. Yields are based on the approximate current prices and are within a fraction of ½. Argentine traffic is given in sterling calculated @ 16½ pesos to the £  
 ↑ Receipts are calculated @ 1s. 6d. to the rupee      § ex dividend